TEXTILE WORLD

APRIL • 1944

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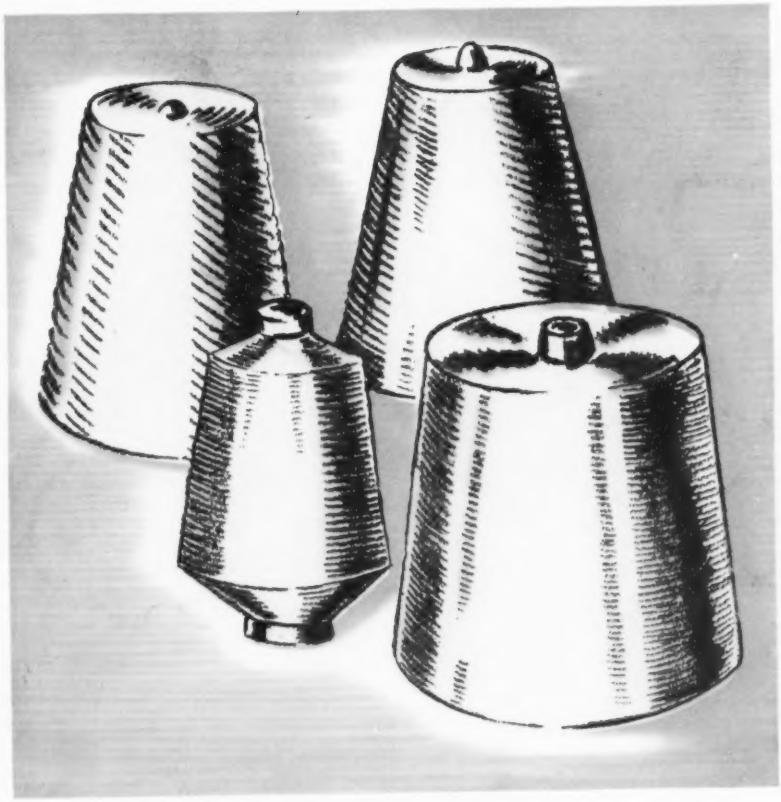

YARNS FOR *Knitting*

SEE PAGE 81

26 YEARS OF SPECIALIZATION IN TEXILE ENGINEERING

PRODUCTION efficiency and profits in the post-war era will be largely regulated by the physical layout and construction of your plant itself.

Robert and Company offers the services of an experienced, well-rounded organization; members of our staff are thoroughly familiar with the newest developments and improvements in textile production. Through its set-up of complete, specialized departments, this firm is qualified to deal expertly with every important phase of textile engineering.

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Architects and Engineers

ATLANTA, GEORGIA

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POWER PLANTS — SEWAGE PLANTS

WATER TREATMENT

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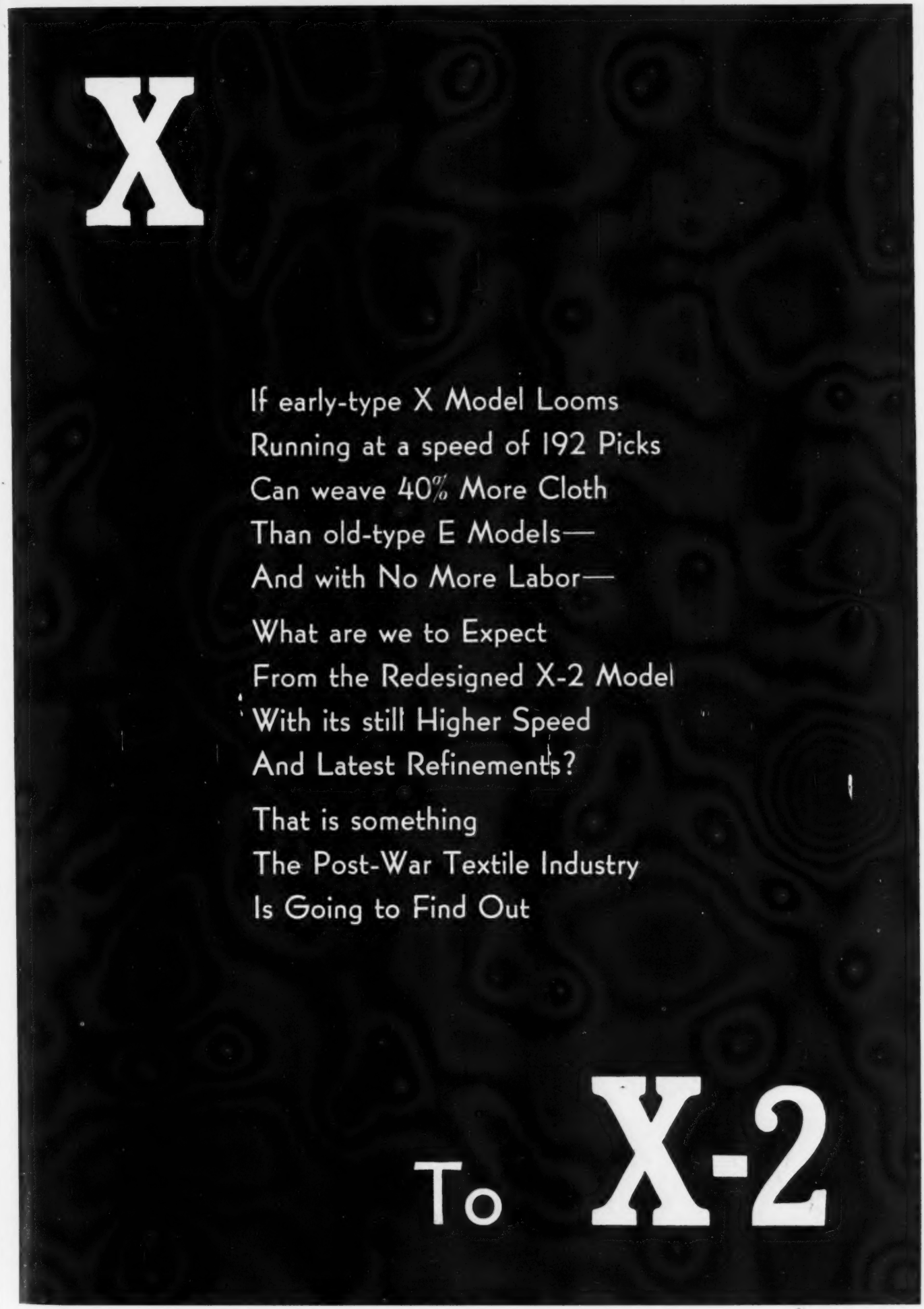
X
If early-type X Model Looms
Running at a speed of 192 Picks
Can weave 40% More Cloth
Than old-type E Models—
And with No More Labor—
What are we to Expect
From the Redesigned X-2 Model
With its still Higher Speed
And Latest Refinements?
That is something
The Post-War Textile Industry
Is Going to Find Out
To X-2

Official U. S. Marine Corps Photo.

FOR VAT DYEING AND STRIPPING

Extensively Used in Dyeing Cloth for Uniforms

- **HIGH STABILITY:** The high stability of *Vatrolite** is the result of careful laboratory control during manufacture. *Vatrolite** develops no objectionable odor of sulphur dioxide gas.
- **GRANULAR UNIFORMITY:** The Royce unique method of manufacturing assures you of granular uniformity when you use *Vatrolite**. There is less dust; less waste; and greater ease in handling.
- **FULL STRENGTH:** The full strength of *Vatrolite** assures dependable performance throughout the longest runs.

A "Must" for Color Reduction in Vat Dyeing

ROYCE CHEMICAL COMPANY

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MFRS. OF HYDROSULPHITES: VATROLITE*, DISCOLITE*, PAROLITE*. ALSO NEOZYME*; VELV-O-RAY*, CASTROLITE*; FABRITEX*, GUMOLITE*; ROYOX*

*Reg. U. S. Pat. Off.

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A GLIMPSE AT OUR FUTURE?

IN ENGLAND a special committee of the Cotton Board has just drawn up a set of postwar recommendations for the cotton-textile industry. They involve modernizing manufacturing facilities, improving working conditions, establishing employment stability, regulating the proportion of sales between export and domestic markets, concentrating on large-volume products, seeking international trade agreements, controlling both maximum and minimum prices, and restricting (and to some extent reducing) the size of the industry. It appears that the help of the Government is to be sought wherever the industry cannot reach its objectives without it.

All these recommendations, particularly the last, could not be advanced seriously in this country at this time; but we must remember that our economic system was born in England and that it has shown a tendency to inherit England's problems sooner or later. Indeed, much of our legislation designed to cope with those problems in recent years has echoed familiarly on English ears.

Our last depression, it will be remembered, produced the National Recovery Act; and NRA Code No. 1, which was the cotton code, was perhaps no more of a departure from traditional practice and from the principles of free enterprise than is the new British plan. The NRA was abolished by a judicial body which was soon afterward changed in personnel and in viewpoint. There is no telling what the next depression will do to us. Therefore, there is no sense in looking askance at the new plan across the water and simply saying that it can't happen here.

MANY OF ENGLAND'S TROUBLES arise from the fact that one of the main props of her economy is export business and that rising competition in foreign fields has seriously weakened that prop. Before the war, Japan was producing as much cotton goods as England and was exporting 50% more, while many lands to which England formerly shipped cottons were beginning to produce their own.

In the past we have not leaned heavily on exports. While England was shipping out over 40% of her cotton yarns and fabrics, we were shipping only 2% of ours. But the belief is growing that an essential part of our postwar planning to maintain employment and standard of living should be to increase our exports; and of course the reduction in foreign textile manufacturing capacity caused by the war, together with a rising standard of living in relatively backward lands, promises to open up a huge export market for us, of which we shall probably take advantage whether we are particularly aggressive about it or not. If we increase our production to meet the export demand, we may eventually be in the same position in which England now finds herself.

IT IS OBVIOUS that an industry which exports heavily is a different sort of industry from one which depends almost entirely on domestic consumption. The former falls naturally into a cooperative spirit, since its units must act in concert on the development of exporting means and methods, including credit facilities, and on the solicitation of Government aid. In this country, the domestic-market industry, whatever may be its inclinations toward cooperation, is restrained by legislation designed to insure free competition.

An exporting industry therefore tends to become a unit, in competition with other, perhaps similar, units abroad. It may be a question, of course, whether such competition will operate as directly and effectively to increase efficiency, lower costs and prices, and so raise the standard of living as will domestic competition; but at least, while altering the nature of the competition, it does not entirely remove it. There is also some question as to whether such competition is a safe and sane type to foster in a world in which there is no central or overall disciplinary control.

England, incidentally,—a peace-loving nation today—knows this; and she is more than willing to enter into mutually satisfactory trade agreements with other nations. But such agreements, essential as they may be, could tend to remove the last vestiges of the competition she needs to strengthen her industrial soul and further her material civilization.

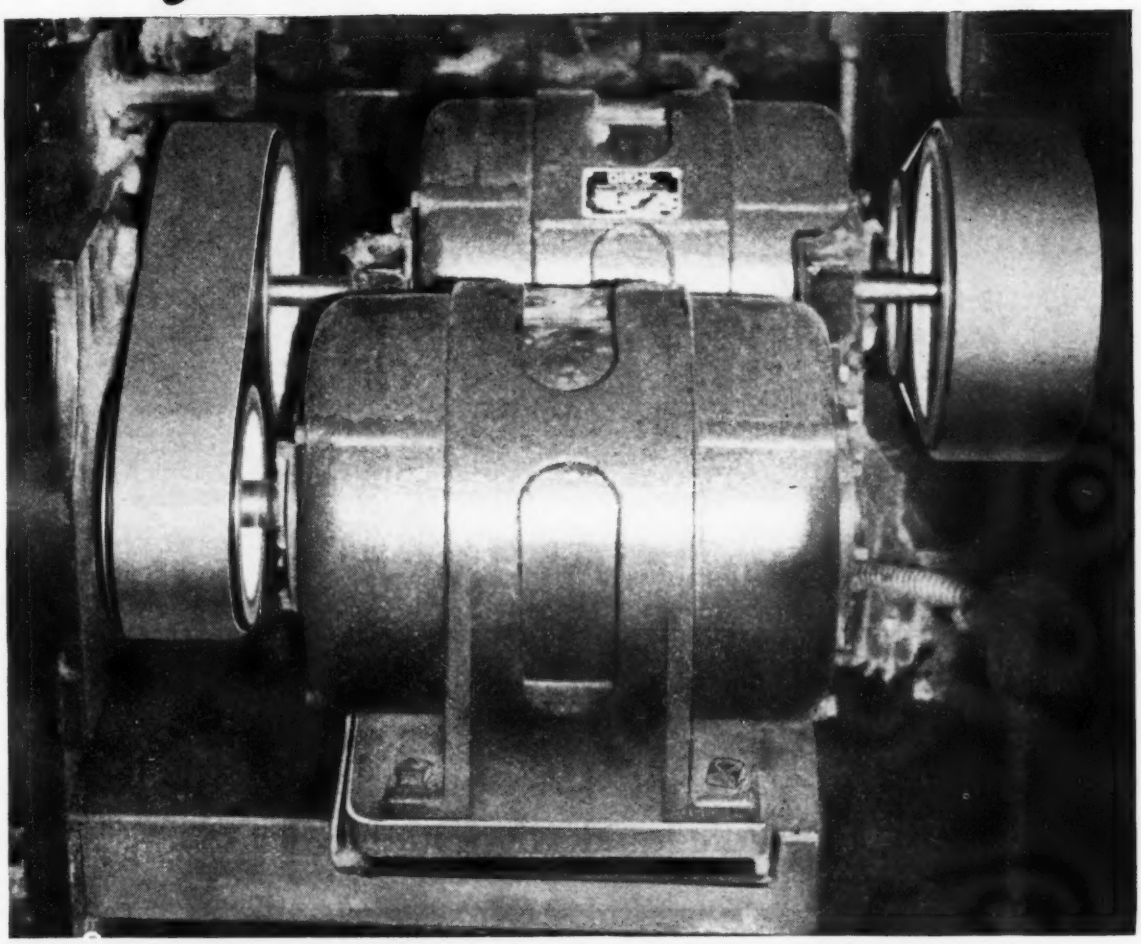
Does all this represent the path which lies before American textiles? Let us keep the dangers in mind as we begin to expand our exports, and take whatever precautions are possible.

Elwin D. Towle

A WORKING EXAMPLE OF THE

4 Way Economy

of *Tannate* LEATHER BELTING



1—Great Efficiency

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3—Unusually Long Life

4—Low Maintenance

These four outstanding advantages that add up to economical power transmission you get with Tannate . . . and here are the reasons why.

Tannate is an exceptionally strong belt, averaging ⅓ to ½ greater strength than choice oak belting. Also it has outstanding endurance that results in a long lifetime of hard service with little maintenance needed to keep it in good running condition. We do, though, recommend occasional applications of Rhoads Tannate Belt Preserver.

The unusual pulley grip inherent in Tannate keeps machines running at full capacity even when loads vary. Thus, more uniform work is turned out with less spoilage while the unit costs are lowered.

To get all these advantages . . . get Tannate.

J. E. RHOADS & SONS

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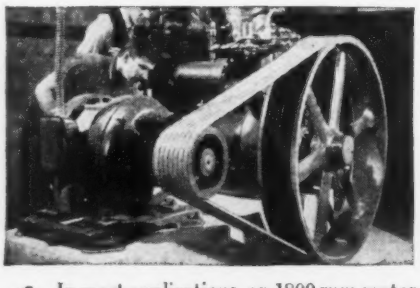
STEP UP PRODUCTION with

RHOADS *Tannate*

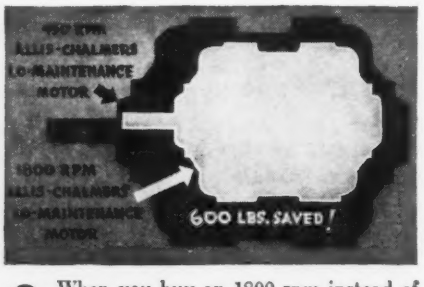
WATERSHED LEATHER BELTING

A-C "Team" Flexibility

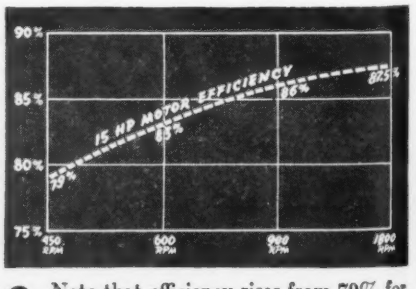
★ To drive low speed machinery with high speed motors (now that low speed motors are sharply restricted), Allis-Chalmers Texrope Drives can "gear down" motor speeds over a range of 7 to 1. As America's only builder of *both* motors and V-belt drives, Allis-Chalmers has long studied and advocated their use in proper com-



1 In most applications, an 1800 rpm motor with Texrope Drive will ably do the job of a lower-speed, direct-connected motor —at lower cost in money *and materials!*



2 When you buy an 1800 rpm instead of 450 rpm 15 hp squirrel-cage motor, for example, 600 lb are saved. And *you* save well over $200 — with drive figured in!



3 Note that efficiency rises from 79% for the 450 rpm motor to 87.5% for the 1800 rpm motor. The 1800 rpm motor saves you over 30 kw/24 hr. day.

WE WORK FOR VICTORY — WE PLAN FOR PEACE

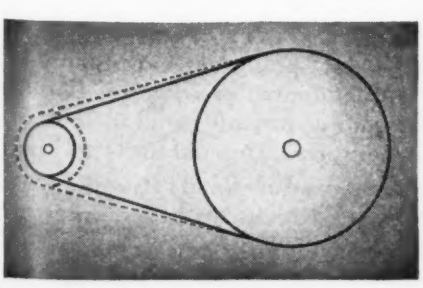
ALLIS-

Gives You now needed

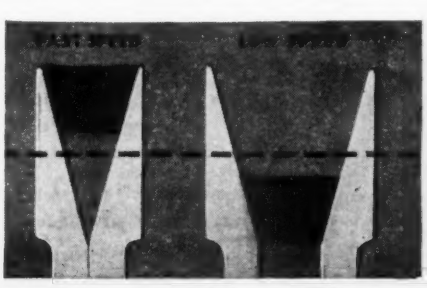
bination . . . today offers you the benefit of long pioneering experience. Texrope Drives are compact, highly efficient, protect your equipment by absorbing shock.

★ To drive a machine at different rates with a single speed motor (now that multi-speed motors are sharply restricted), Texrope Adjustable-Speed Drives give you infinite speed range up to 375%. And in Allis-Chalmers full line of Texrope Drive equipment you'll find the *right* range for your machines . . . thus avoid paying extra for more speed than you need. For engineering cooperation, feel free to call on your nearby Allis-Chalmers district office or write to Allis-Chalmers, Milwaukee 1, Wisconsin.

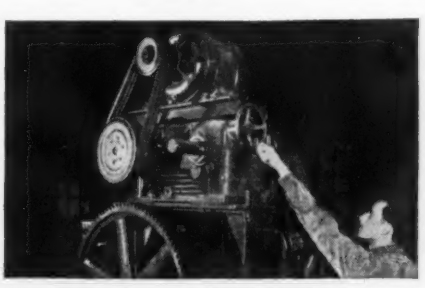
A 1706



4 Infrequently needed speed changes can be had by changing from one size motor sheave to another. Juggling *complete* drives, range is 1:1 to 7:1.



5 With the Allis-Chalmers Vari-Pitch Sheave, you can increase or decrease speed by adjusting sheave diameter . . . obtaining an *unbroken* series of speeds!



6 Allis-Chalmers Vari-Pitch Speed Changer gives you infinite changes at the turn of a wheel — within 3.75 to 1. It's compact, flexible, *efficient!*

CHALMERS

LO-MAINTENANCE MOTORS
TEXROPE DRIVES

SACO-LOWELL SHOPS
TEXTILE MACHINERY
ENGINEERING DEPARTMENT
Date October 8, 1943
SUBJECT: Continuous Card Stripper
SUMMARY
Production
100 Cards @ 12 pounds per hour (80 hrs. weekly, less 5% lost time).....91,200 lbs.
Stock to production instead of waste 2%..... 1,824 lbs.
(average of mill tests).....
Cotton Costs
Cotton at Opener Room..... 21.50¢
Cotton at Cards, after taking out 10% waste..... 23.89¢
Selling price of strips f.o.b. mill..... 12.00¢
Difference between cotton and strips..... 11.89¢
$10,843.50
Savings
Material - 1,824 lbs. @ 11.89¢ per week-$216.87 for 50 weeks.....
Stripping time eliminated -
2 men @ $24.00 and 1/3 man @ $30.00 per week - $58.00
Day:
Night: 2 men at $24.00 and 1/3 man at $30.00 per week- 58.00
For 50 weeks..... 5,800.00
TOTAL ANNUAL SAVINGS - $16,643.50
Investment
100 Card Strippers @ $185.00.....$18,500.00
ANNUAL RETURN ON INVESTMENT 89%

Saco-Lowell
CONTINUOUS CARD STRIPPER

. . . a letter from one mill superintendent said

"They have paid for themselves many times over . . we could not get along without them."

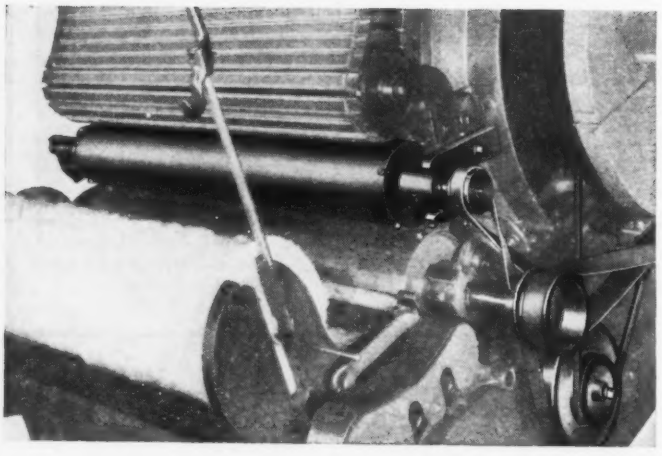
This has been the experience of a great many other mills using the Saco-Lowell Continuous Card Stripper. In fact, one mill superintendent after using this ***Cotton Saving and Cost Reducing Assembly*** told us that we had been conservative in presenting our facts to him.

This Saco-Lowell Continuous Card Stripper has many practical advantages which can be summarized as follows:

Saving of Cotton — **Cleaner Card Room**
Increased Production — **Saving in Labor Cost**
Improvement in Quality of Yarn
Reduction in Power Consumption

The Saco-Lowell Continuous Card Stripper is easily and quickly installed on all Saco-Lowell Cards . . . and in many cases on those of other manufacturers.

Descriptive Catalog sent upon request.



SACO-LOWELL SHOPS **60 Batterymarch Street, Boston, Mass.**
Charlotte **Greenville** **Atlanta**

A GOOD MAN TO KNOW

— when you're buying synthetic rubber industrial products

Now with the mandatory conversion of industrial rubber products to synthetics, you need expert counsel more than ever in selecting the correct grades and constructions for your particular service.

That is why more and more operating men are guided by the recommendations of the G.T.M. — Goodyear Technical Man. An expert in industrial rubber, he is backed by Goodyear's twenty years' experience in developing synthetics and by the authority of the world's finest rubber research laboratory.

Long before the war, Goodyear was building many industrial products from synthetic rubber, based on knowledge that goes back to the granting of Goodyear's first synthetic patents in 1927.

As a result, the G.T.M. today is able to specify synthetic rubber products of standout quality. Some, especially for service where exposure to oil, gasoline or solvents is involved, set new performance standards.

Others, like the new Goodyear Style SS Conveyor Belt for abrasive conditions, are comparable to the best prewar quality. And still others, like our new Resoweld tank lining, perform tasks never handled satisfactorily by natural rubber.

Yes, it will pay you to consult the G.T.M. — if you want industrial rubber products that will maintain your speeded-up production schedules. To bring him to your office, phone the nearest Goodyear Industrial Rubber Goods Distributor — or write Goodyear, Akron 16, Ohio or Los Angeles 54, California.

Resoweld—T.M. The Goodyear Tire & Rubber Company

GOODYEAR INDUSTRIAL RUBBER PRODUCTS
are tested and proved in the
WORLD'S FINEST RUBBER RESEARCH LABORATORY

The new Goodyear Research Laboratory, where 20 years' experience in synthetics and 46 years' skill in rubber engineering combine to produce better industrial rubber products.

GOODYEAR
THE GREATEST NAME IN RUBBER

Let's all Back the Attack with War Bonds

1. Hunter Multi-purpose Reflectometer measures color of powders, liquids and soil in fabrics.
2. Photoelometer is used to measure color—or soil in suspension—of various solutions.
3. Lange Reflectometer is most often used to determine residual soil after wash tests.
4. Evelyn Photoelectric Colorimeter is used, like photoelometer, to evaluate color and turbidity of liquids.
5. Launder-O-Meter, designed by A.A.T.C.C., used to wash samples in different detergents.
6. Coleman Spectrophotometer is used on liquids or fabrics to get highly accurate color measurements.

How dirty is dirt?

To the layman, this may sound like a silly question.

But both your textile research men and Monsanto's are often seriously concerned with the answer — so much so that precise and complicated instruments like the five shown above at Monsanto's Central Research Laboratories, are used to get accurate measurements of the amount of "dirt" present in a given fabric or soap bath.

The question arises, of course, in evaluating the efficiency of the detergents and the emulsifying, wetting and dispersing agents which are so vital in so many of your processes.

Like many problems these days in the development of new and better textiles and textile production methods, such evaluation calls for an amazing array of laboratory equipment — ranging from Launder-O-Meters and mill-type washers to sensitive photoelectric instruments like the reflectometer included in the group above. It also calls for men with specialized skills well leavened with practical experience in textile problems.

In fact, here is one more illustration of the need for close cooperation between progressive producers of both textiles and chemicals . . . and one more example of why it will pay *you* to work on *your* particular problems in partnership with a well-equipped team of textile chemical specialists like Monsanto's. MONSANTO CHEMICAL COMPANY.

Divisions cooperating in Monsanto's integrated research and technical service program for the textile industry: Organic Chemicals Division, St. Louis; Plastics Division, Springfield, Mass.; Phosphate Division, St Louis; and Merrimac Division, Everett Station, Boston 49. Inquiries should be addressed to Merrimac Division.

The Textile
SERVING INDUSTRY...WHICH SERVES MANKIND

MONSANTO
CHEMICALS — PLASTICS

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. . hints
on overhauling . .

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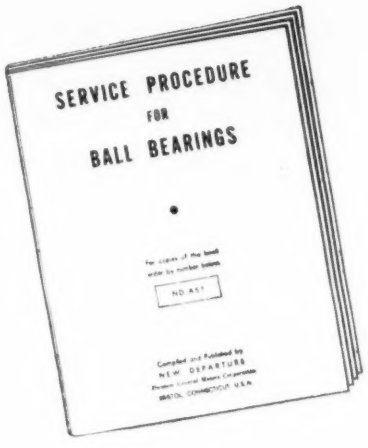


Copies of this book in any reasonable quantity may be had free by addressing New Departure Division General Motors Corp., Bristol, Conn. Ask for Booklet SP.

● Because they are a vital necessity in practically all kinds of fighting equipment, ball bearings have become one of today's "hard to get" items. Thus it is more important than ever before to get the utmost service out of ball bearings in all equally vital home front equipment.

By using the correct methods of handling bearings when overhauling equipment it is possible to keep a great many in use that otherwise might be damaged or unnecessarily discarded.

To help both trained men and those of lesser experience a new booklet entitled "*Service Procedure for Ball Bearings*" has been written to give in simplest terms all of the steps from dismounting, cleaning, judging condition, to remounting, fully described and illustrated with drawings and photographs.

NEW DEPARTURE
BALL BEARINGS

3241

It's already T-SQUARE TIME

—Let FIDELITY Development Service help you get ready *now*

for Transition from war to peacetime production. At FIDELITY you get more than a notable designing and engineering staff. With it you get an unusual manufacturing organization and equipment, with testing facilities well beyond the ordinary.

This combination of talent and tools can speed up the practical development of automatic precision machines which may help you outstrip competitors.

You can supplement your own experience with FIDELITY'S war-bred techniques, its modern equipment and the technical imagination which, during the past third of a century, has contributed a long list of special-purpose machines that have multiplied manpower, cut horsepower and improved production and product.

If you need such a machine—particularly in the medium-size range—FIDELITY offers you an important service which can also include quantity manufacture and, in certain fields, marketing on a license basis.

You can get the FIDELITY story by writing for the 48-page book: "Facilities."

Intricate, Automatic Precision Machines

FIDELITY MACHINE COMPANY

3908-18 FRANKFORD AVENUE PHILADELPHIA 24, PA.

How Can an Army Truck Influence Textile Dyeing?

LOOK AGAIN at the next army truck you pass—a drab and somber looking paint job protects its robust hide.

Stop and consider the wherefor of that paint job. That color is not a matter of accident or economy—it's O.D. camouflage paint made especially to blend with the surrounding terrain, and it possesses a special virtue—its infra-red reflectance characteristics match, within close limits, those of nature's foliage.

The research and application laboratories of Calco have spent much time and effort in the development of dyes and pigments for this purpose, and have thus acquired a fund of knowledge on the science of camouflage.

The scope of study devoted to the chemistry of color in these laboratories is, we believe, unrivaled in the dyestuff industry. Now answering pressing war problems, these laboratories also continue to serve their civilian function.

Textile dyers have long been familiar with the practical application of this research through Calco Technical Bulletins. These studies and applications are endless.

With an eye to converting recent developments to postwar civilian use . . . our laboratories are studying completely new lines of dyes and technics for their application. They will re-define present standards for fastness to sun and cleaning. That's just one phase of Calco activities for its textile customers. We'll report each development as it's ready . . . for you.

P. S. FOR TEXTILE PRINTERS:

If you are printing acetate fabrics by roller or screen, you will find that Calco has excellent colors for your line. Among them are: Calconese Brilliant Orange 5R, Scarlet GC, Red GG, Bordeaux Extra, Yellow GC, Brilliant Scarlet BN.

Calco Chemical Division
American Cyanamid Company

BOUND BROOK, N. J.

CHICAGO • NEW YORK • PHILADELPHIA • BOSTON
CHARLOTTE • PROVIDENCE

Now Available

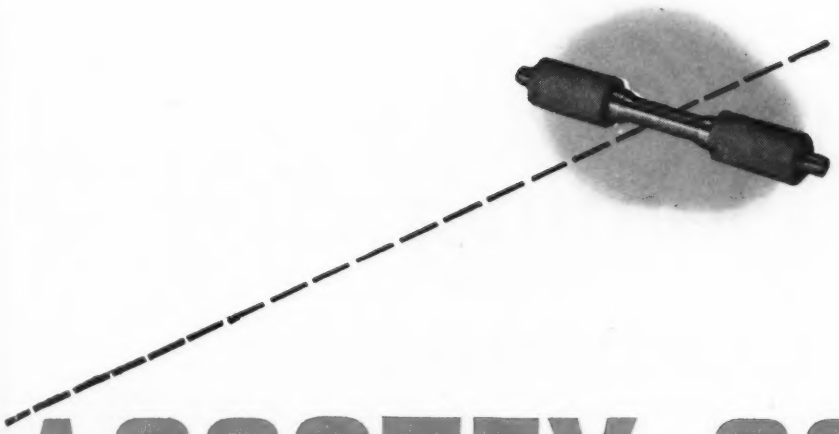
ARMSTRONG'S NEW

This new cot offers...

1. **LONG SERVICE**—Accotex Cots are tough. And they can be rebuffed.
2. **GOOD DRAFTING**—Accotex Cots retain their excellent grip, because they resist slicking.
3. **REDUCED EYEBROWING**—The resistance to slicking minimizes eyebrowing.
4. **REDUCED LAPPING**—Accotex Cots have little affinity for textile fibers and are nonsweating.
5. **GOOD START-UP**—Accotex Cots are nonthermoplastic and resist flattening.
6. **SOLVENT RESISTANCE**—Accotex Cots are not affected by oil, water, dyes, or textile solvents.
7. **SEAMLESS CONSTRUCTION**—Accotex Cots have no seams to break open or shorten service life.
8. **QUICK ASSEMBLY**—Accotex Cots are ready glued.

WHAT'S BACK OF ACCOTEX

Armstrong's
- 84 years' experience with cork
- 27 years' experience with rubber
- 22 years' experience with roll coverings
- 9 years' experience with synthetic cots



ACCOTEX COTS

. . . improved roll coverings with CORK'S GRIP plus SYNTHETIC RUBBER'S TOUGHNESS

THE new, improved Armstrong's Accotex Cots are really a *new type* of textile roll covering. Made of a special cork-and-synthetic-rubber composition, they offer you—in one cot—the superior friction of cork *plus* the longer-wearing qualities of synthetic rubber. And you can get them now . . . thanks to the current easing of restrictions on the materials that are required for their manufacture.

These new cots, known to many mill superintendents as Accotex NC-727 during a year and a half of mill-testing, are already serving 750,000 spindles. Mills report that cork-rubber Accotex Cots have spinning properties far superior to those of any synthetic roll covering now in general use. They find that these improved Accotex Cots are nonslicking, that they retain their grip, and reduce "eyebrowing." There's less lapping up, too, because these cots don't "sweat." They are also highly resistant to solvents. And, after a long initial life of spinning quality yarn, Accotex Cots can be rebuffed three or four times for extended service.

These unique cots are a product of Armstrong's long experience in the use of cork and of synthetic rubber for textile roll coverings . . . plus specialized knowledge gained by Armstrong as the originator and largest producer of cork-and-synthetic-rubber compositions.

In addition to cork-rubber Accotex Cots, Armstrong can supply Accotex Cots made of plain or soft synthetic rubber for special uses.

For full information, samples, and prices of Accotex Cots, see your Armstrong representative. Or, write direct to Armstrong Cork Co., Textile Products Section, 8304 Arch St., Lancaster, Pa.

ARMSTRONG'S ACCOTEX COTS

CORK COTS • ACCOTEX APRONS

L. F. Dommerich & Company

Executive and General Offices

271 MADISON AVENUE
NEW YORK, N. Y.

Telephone: AShland 4-8650

FACTORS

For Manufacturers and Merchants

Inquiries as to our services solicited

●

ESTABLISHED 1840

SANDOZ PRESENTS *The color achievement of the month*

Sage Green BY THE FRANK H. LEE CO.

WISE MEN this spring are wearing Sage Green . . . a new color in a new hat by The Frank H. Lee Co.

Sandoz, whose dyes help create many a fashion leader, congratulates The Frank H. Lee Co. on this distinctive addition to "the hats that are always creased the way you want to wear them."

It is natural that The Frank H. Lee Co. whose unique machines have been developed by their own engineers, should consistently include Sandoz among their suppliers especially since they so often require colors of *exceptional* quality. For Sandoz also relies on the skill of its own technicians in "thinking ahead with textiles".

For instance, Alizarine Light Blue 4 GL, a patented product, is now recognized as the fastest-to-light acid blue on the market. It has ended many troubles formerly encountered in level dyeing piece goods. Other Sandoz developments, such as Metomega Chrome Brown RLL, have brought simplicity and sureness to dyeing operations.

To help you make full use of Sandoz' acid and chrome dyes and auxiliary chemicals for all natural and synthetic fibres, Sandoz application laboratories are at your service in New York, Boston, Philadelphia, Charlotte, Los Angeles and Toronto. Stocks are carried in those cities. Other branches in Chicago, Paterson and Providence.

Another Sandoz "Color Achievement of the Month" — next month — will salute another Sandoz customer. Watch for it.

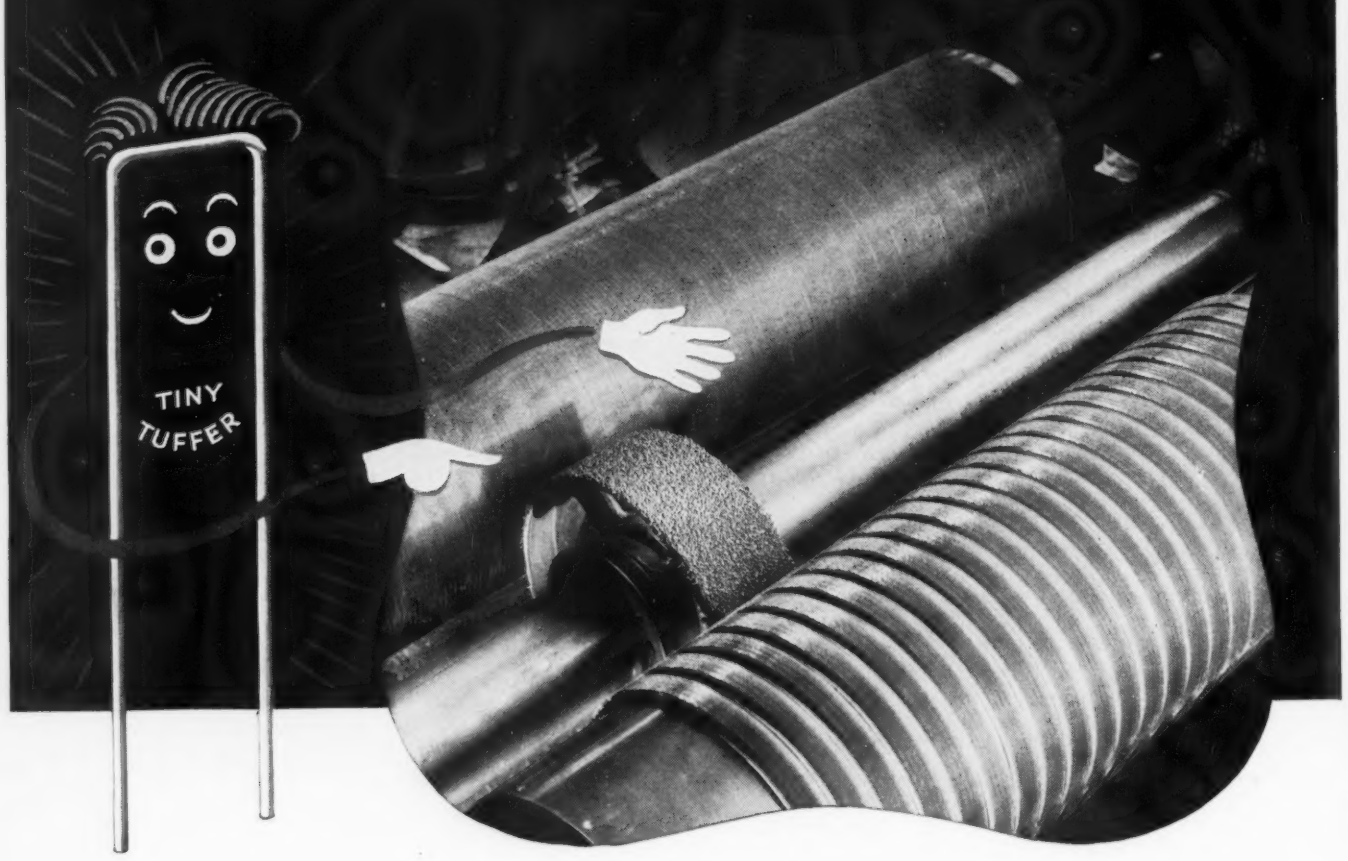
SANDOZ CHEMICAL WORKS, INC., 61 VAN DAM STREET, NEW YORK 13, N. Y.

SANDOZ *thinks ahead with textiles*

SANDOZ

TUFFERIZED Card Clothing

stays on the job with less grinding



If you want to increase production and lower costs in the card room, try Tufferized Card Clothing.

It is made from the finest steel wire . . . . especially tempered for toughness and flexibility, yet it takes grinding easily to sharp, clean points.

Because it is so accurately formed and placed in the foundation, Tufferized Card Clothing is easier to strip . . . and there is less danger of injuring or dulling the points. This means fewer grindings, more production and lower carding costs.

Your best bet is to *standardize* on TUFFER.

TUFFER CARD CLOTHING

TUFFER PRODUCTS

Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing, Brush Clothing, Strickles, Emery Fillets. Top Flats Recovered and extra sets loaned at all plants. Lickerins and Garnet Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant • Midgley Patented, and Howard's Special Hand Stripping Cards • Inserted Eye & Regular Wire Heddles

HOWARD BROS. MFG. CO.

WORCESTER, MASSACHUSETTS

Southern Plants: Atlanta, Ga., Gastonia, N. C. **Branch Offices:** Philadelphia, Dallas. **Canadian Agents:** Colwool Accessories, Ltd., Toronto 2

CENSORED CENSORED CENSORED

The sad case of a Case History

Many an achievement in the war effort is "born to blush unseen". . . at least for the present. The case history, complete with photographs and diagrams, cannot now be revealed.

In many ways General Electronics Industries has been helping to establish the great war record of electronics, through cooperative research with industrial organizations and Army and Navy research agencies. Present conditions do not permit a full recounting of these achievements.

General Electronics Industries is one of the largest organizations specializing in electronics. And this organization, which has met the exacting tests of war, has the research engineering skill and production facilities that will best answer your electronics needs when the war is over.

Engineering Department, General Electronics Industries, 342 West Putnam Avenue, Greenwich, Connecticut.

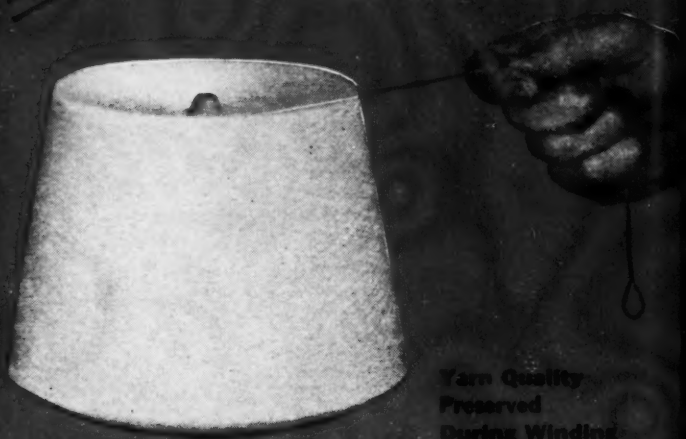
GENERAL Electronics INDUSTRIES

TRADE-MARK REG. U.S. PAT. OFF.

GREENWICH • STAMFORD • BRIDGEPORT • NEW MILFORD • NEW YORK

From Any Angle...

YOU CAN TELL WHY ROTO-CONES KNIT BETTER



Yarn Quality Preserved During Winding

Yarn packaged on Roto-Cones is free from roll cuts. The combination driving drum and traversing guide is a smooth one-piece roll which, by means of grooves, carefully guides the yarn onto the package without roughing it or nipping it.

Angle of Wind Best for Yarn Delivery

All Roto-Cones are produced with the minimum number of winds, desirable for free delivery on knitting machines. A standard Rotary Traverse, used for all knitting cones, provides the one best angle of wind for yarns both coarse and fine.

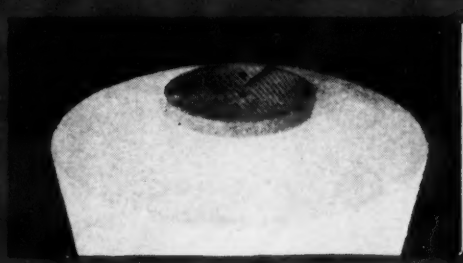
Accelerated Taper for Free Yarn Delivery

On the Roto-Coner* the package diameter increases faster at the base end, providing an accelerated-taper cone. At any diameter, the yarn delivering to the knitting machine will run clear of the nose and surface of the cone.

Every Cone in a Shipment Identical

All Roto-Cones are produced under standard, simple winding conditions. The Rotary Traverse is the same from spindle to spindle — there are no settings to be made, which would introduce the possibility of error. Slub catcher settings are uniformly controlled.

Look for the Double Punch Marks



Roto-Cones are identified by the "open wind" . . . the accelerated taper . . . the curved base . . . the shallow nose (reducing danger of crushing in shipping and handling) . . . the two sets of double punch marks . . . and the smooth, uncut yarn!

ROTO-CONES

ARE PRODUCED BY LEADING YARN MILLS

ROTO-CONERS*

ARE MANUFACTURED BY

UNIVERSAL WINDING COMPANY

PROVIDENCE 1, RHODE ISLAND

BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA

Reg. U. S. Pat. Off.

Official U. S. Army Signal Corps Photograph

LANDING FORCE abroad needs productive support at home. To maintain peak production in *TEXTILE MILLS* use . . .

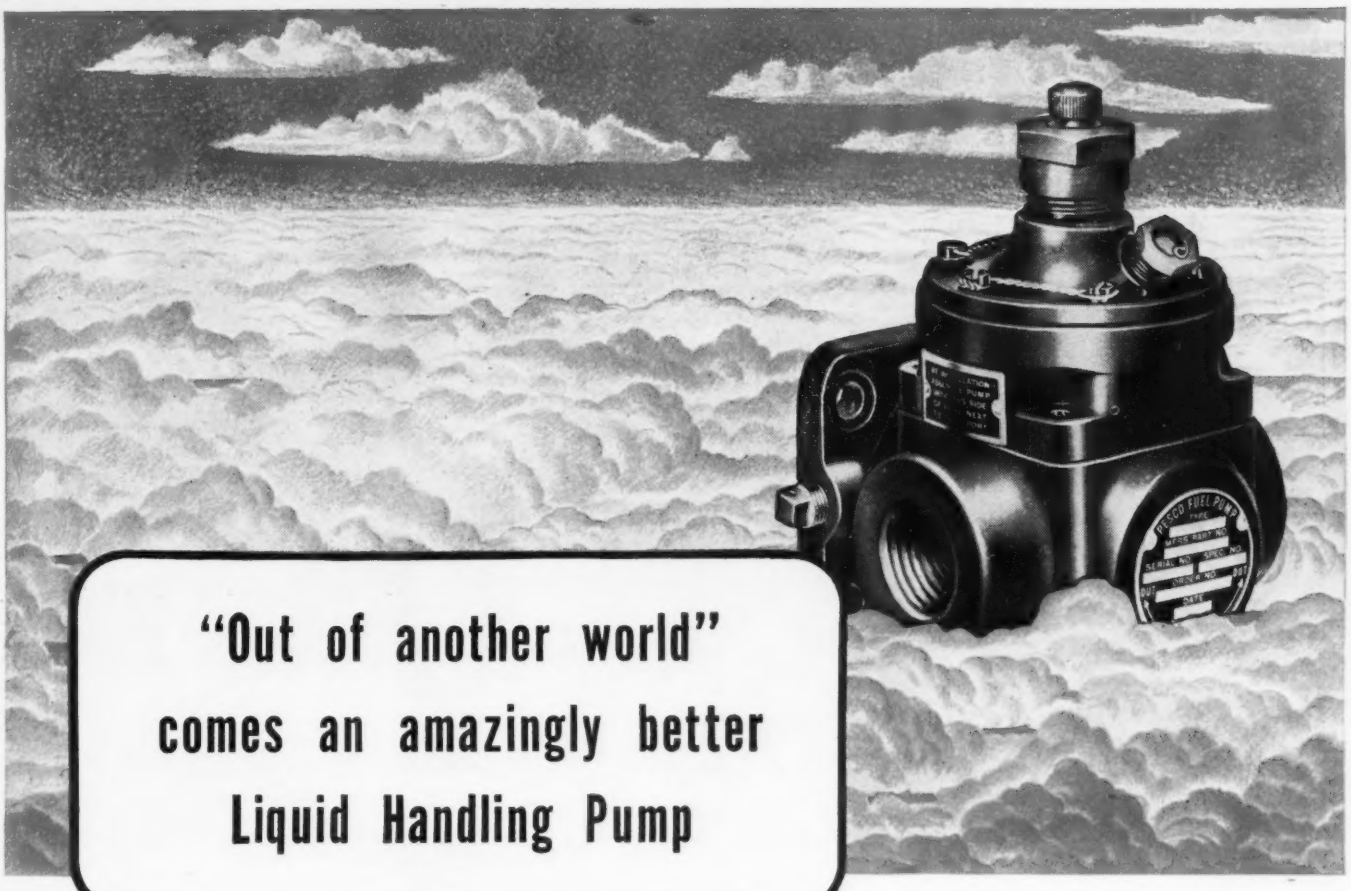
. . . . . SINCLAIR LUBRICANTS . . .

Lily White Oils give *safe* lubrication under all loads and speeds in continuous operation. No-Drip Lubricants have dependable non-throw stability in comb box service. Sinclair *Knitting Machinery Oils* provide *correct*, low cost lubrication.

(Write for "The Service Factor"—published periodically and devoted to the solution of lubricating problems.)

SINCLAIR TEXTILE LUBRICANTS

FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE SINCLAIR REFINING COMPANY (INC.), 630 FIFTH AVENUE, NEW YORK 20, N. Y.



"Out of another world" comes an amazingly better Liquid Handling Pump

To look at it you wouldn't see much to "ah-h" about.

It's small. Weighs less than 4 pounds. But when you note its capacity . . . its efficiency curve . . . its performance record . . . then you begin to take notice.

You see, we designed this pump for operation in another world, high in the heavens . . . in rarefied, subzero atmospheres . . . for planes demanding fuel to maintain speeds of five miles per minute and better.

Pesky things can, and did, happen to pumps up there. But no more . . . since we perfected engine-driven pumps with relief and by-pass valves that maintain efficiency regardless of temperature . . . since we perfected fuel pump refinements which handle "dry" high-octane aviation gasoline at close to 100 per cent volumetric efficiency . . . since we developed a motor-driven booster pump with a new impeller which is approximately 20 per cent more efficient on a power consumption basis than any other now in use on centrifugal pumps of equivalent size.

By mastering these and many other aircraft pumping problems, PESCO can give you fluid handling equipment of entirely new performance. Equally improved PESCO equipment is also adaptable for all types of pumping needs; hydraulic, air, vacuum and liquid. May we tell you more about PESCO Pumps and PESCO Engineering Service?

SEND FOR THIS BOOK "Pressurized Power and Controlled Flow by PESCO". This book pictorially tells the story of PESCO equipment, manufacturing facilities and engineering service. A copy will be mailed promptly upon request.

WRITE TO . . .
PESCO Products Co.
Industry Service O
11610 Euclid Avenue
Cleveland 6, Ohio

Division Borg-Warner

In Precision Hydraulics, Fuel Pumps, Air Pumps, Related Accessories . . .
PERFORMANCE POINTS TO Pesco FIRST

Universal Atlas Cement Company, Leeds, Ala.

CONCRETE

BRICK, MASONRY, OR STEEL FRAME CONSTRUCTION?

That is a matter for YOU to decide after consultation with your engineer or architect. But when your decision has been reached, you will need the services of a contractor competent in all types of industrial construction.

Our organization has been departmentalized to meet this need.

A trained and experienced personnel, with adequate modern mechanized equipment, is your assurance of prompt, efficient and satisfactory service.

EXISTING PLANTS MODERNIZED MAINTENANCE SERVICE FURNISHED
ANYWHERE IN THE SOUTH

DANIEL CONSTRUCTION COMPANY, INC.

GREENVILLE, S. C. BIRMINGHAM, ALA.

GRATON AND KNIGHT

ONLY "RESEARCH" BELT GIVES YOU THIS

"DOUBLE-PLUS"

THE 3 BIG ADVANTAGES OF QUALITY LEATHER

MORE PRODUCTION, because leather's superior -traction improves with age, means more power delivered . . . greater average machine production.

LESS MAINTENANCE, because leather has natural "give and take" to handle shock loads without undue strain on belt or equipment.

LONGER LIFE, because the tough, interlocking fibres of leather have high resistance to both surface wear and internal friction.

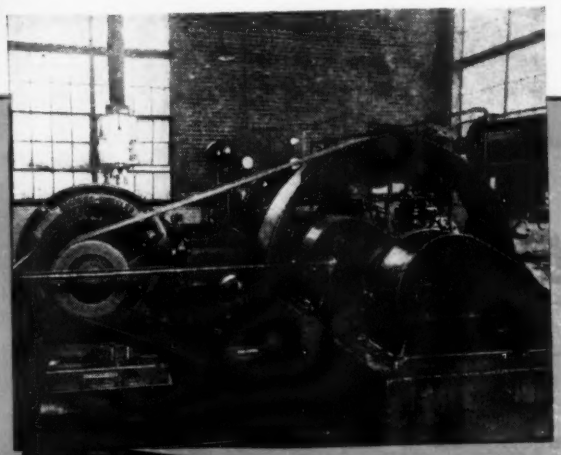
and

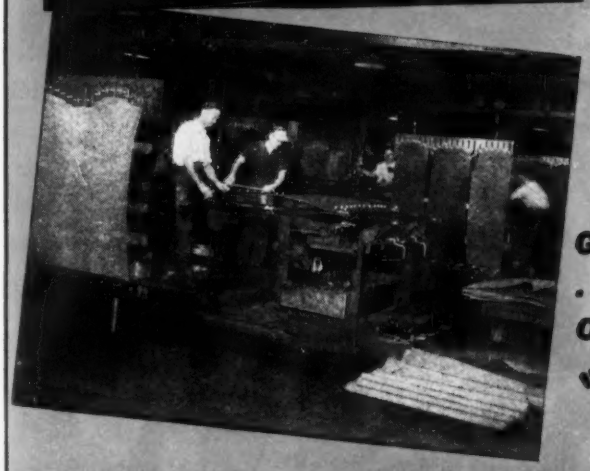
3 EXCLUSIVE FEATURES OF "RESEARCH" BELTING

MOST PRODUCTION, because "Research" currying added to leather's superior traction creates highest frictional surface. 3% more production guaranteed.

LEAST MAINTENANCE, because G&K'S pre-stretching process removes non-elastic stretch, resulting in fewer take-ups. Tensile strength is also increased 15%.

LONGEST LIFE, because precise weight-controlled lubrication of fibres develops extremely long life. "Tension-Cementing" insures against ply separation.





HERE'S A TYPICAL EXAMPLE OF

LEAST MAINTENANCE

WITH "RESEARCH" ON YOUR DRIVES

These "Research" Belts, installed June 1940, have required no maintenance — not even shortening. Drive data: 100 KVA synchronous motor, 900 R.P.M. — mounted on No. 14-I Rockwood pivoted motor base . . . 17½" diameter motor pulley . . , 72" compressor pulley . . . 78" center distance . . . bottom pull . . . 14" G&K Research Double, 25½' long. 12" motor pulley, belted by 4" G&K Research Double, 10' 11" long, drives exciter with 7½" pulley mounted on No. 6 Rockwood base . . . 50" center distance.

"Research" Belts come to you pre-stretched to save you the trouble and cost of frequent take-ups. Pre-stretching by an exclusive method — according to hide characteristics.

GET AT LEAST 3% MORE PRODUCTION ...2 TO 4 TIMES LONGER LIFE ON LONG OR SHORT CENTERS...by specifying "Research" the Belt with the

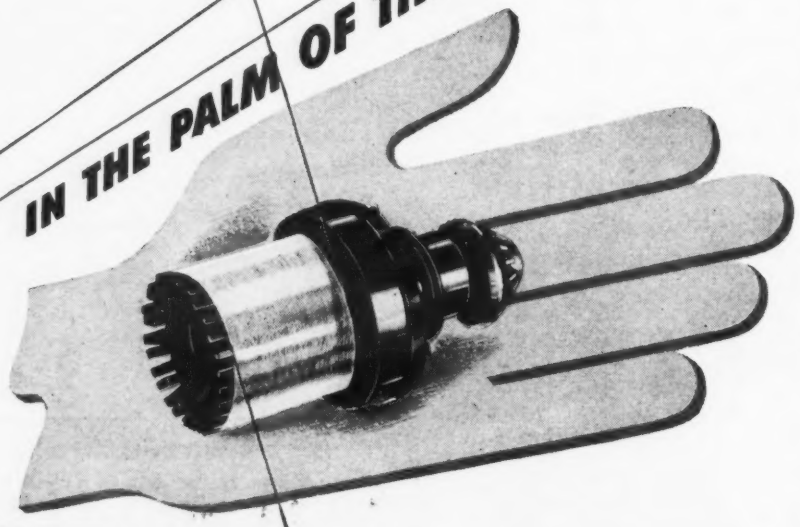
Graton & Knight is the only leather belting manufacturer with complete nation-wide service facilities. Branches in Chicago, Cleveland, Dallas, Detroit, Kansas City, Minneapolis, New York, Philadelphia, St. Louis, San Francisco; distributors in all industrial centers.

Look under "Graton & Knight" in Belting section of Classified Telephone Directory or THOMAS' REGISTER

GRATON & KNIGHT COMPANY

WORCESTER 4, GRATON AND KNIGHT MASS.

IN THE PALM OF THEIR HANDS



LIES THE *SWORD* AND THE *PLOUGHSHARE*

Just as the textile experts of Industrial produced a new and superior rayon yarn with the development of the famous "Continuous Process" . . .

Just as they quickly converted the "Continuous Process" to the needs of war . . . . . so they stand ready for immediate reconversion back to the works of peace, once the war is won. And when that day dawns, "Continuous Process" Yarn, virtually knotless, free of broken filaments, and uniform to a remarkable degree, will play a starring role in the development of the new textiles, weaves and constructions that are bound to come with peace.

Industrial
RAYON CORPORATION
MAKERS OF
"CONTINUOUS PROCESS" RAYON YARN
AND Spun-lo KNIT UNDERWEAR CLOTH

*Reg. U. S. Pat. Off.

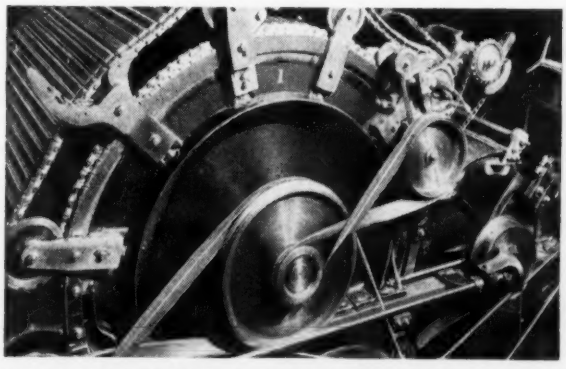
CLEVELAND, OHIO · *New York Office, 500 Fifth Avenue*

LET A LAWYER ADJUST YOUR CARBURETOR ?

When you want legal advice, you go to a lawyer. But, when the carburetor on your car needs adjusting, you get a good auto mechanic. It takes a *specialist* to do the job right!

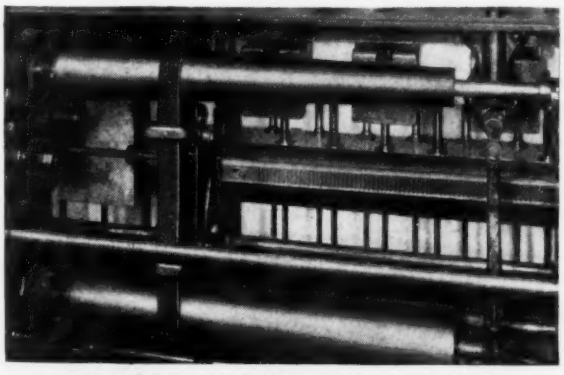
GILMER SPECIALIZES IN BELTS

Gilmer has a complete line of belts for the Textile Industry, engineered by specialists . . . the right belt for every power transmission job. And the Gilmer Engineering Staff specializes in power transmission problems. They are available for consultation without obligation. They can show you how to increase the efficiency of most of the drives in your plant by using dependable tight-gripping, slip-free Gilmers.



GILMER KABLE KORD LICKERIN BELTS

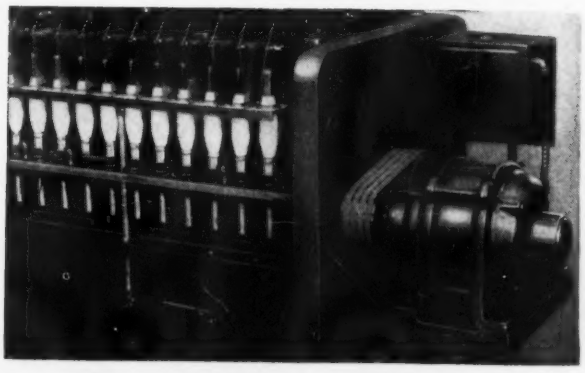
Increase production and outlast any belt on the market.



GILMER CONE DRIVE BELTS

Longer life in the toughest service and shift easily because of sturdy internal construction.

SOME SPECIAL GILMER BELTS:



GILMER V-BELTS

Deliver power from the motor to the spinning frames with maximum efficiency.

In addition, Gilmer has a complete line of Endless Round Belts for Carding Machines, Endless Cord Spinner Belts for Silk Throwing, and many others, all completely described in the handbook "Gilmer Belts for the Textile Industry." This handbook simplifies the details for specifying Belts for the great majority of drives. Write for your FREE copy today. It's yours for the asking.

Gilmer BELTS

L. H. GILMER COMPANY, Tacony, Philadelphia 35, Pa. • *The Oldest Firm of Rubber Fabric Belt Specialists*

"So men may l

Crash landings at sea used to mean "curtains." Now, more and more of our fliers come back . . . thanks to modern life rafts. Today's improved *"See-ability"* is helping workmen build them faster — and better . . .

Let's suppose you're flying a patrol and run out of gas far at sea. Your engine sputters, dies and—down you come.

A tough spot . . . but almost before your ship hits the water you're clear and aboard the rubber raft stowed away for just such emergencies.

Rugged, sea-worthy, these amazing boats have kept fliers and their crews afloat for weeks! No wonder they can take it—when you realize how carefully they are built; how rigidly materials and workmanship are tested and re-tested!

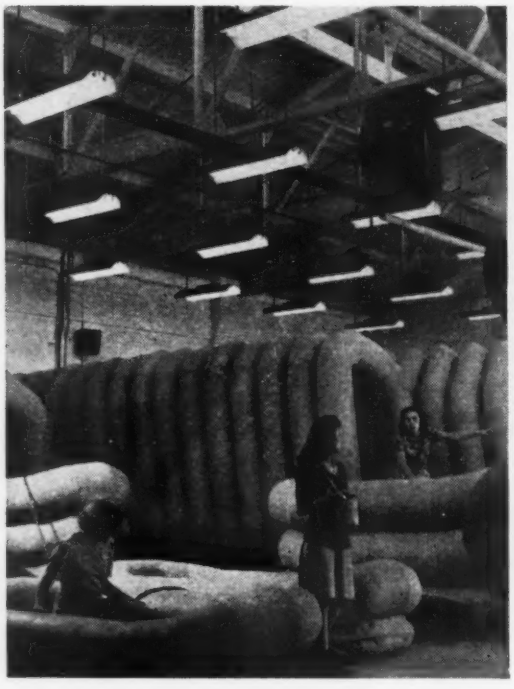
On this life-and-death job "See-ability" through modern improved lighting is playing an important role. It is helping eyes and fingers do their work faster, more efficiently. It is speeding production—reducing "rejects," increasing quality.

In fact, in this as well as other vital war work, millions of Westinghouse Mazda Lamps are bringing better "See-ability," helping set new peacetime lighting standards for the industrial world of tomorrow.

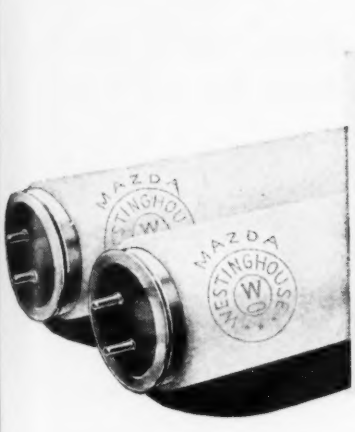
Ask your Westinghouse dealer to show you how Westinghouse Mazda Lamps will give you See-ability, or write to the Westinghouse Electric and Manufacturing Company, Lamp Division, Bloomfield, New Jersey. *Plants in 25 cities . . . offices everywhere.*

Easy on the eyes (*opposite page*) . . . Looking for broken threads in boat fabric. Here the operator must look directly into the light. How significant that Westinghouse Mazda Fluorescent Lamps were chosen for this critical task!

KEEP YOUR DOLLARS FIGHTING . . . BUY WAR BONDS



ylive to fight again!"



Westinghouse

MAZDA LAMPS

FOR BETTER "SEE-ABILITY"

This now—

(Official U. S. Marine Corps photo)

High tenacity rayon Cords for heavy duty tires used on army trucks, troop carriers, bombers, and other air-craft guns and tank destroyers get a battering such as tires never had before, and they stand up under the abuse.

Johnson machines are being employed by many leading yarn manufacturers for treating the cord used in these tires.

—and This After the War—

those mills that buy and use

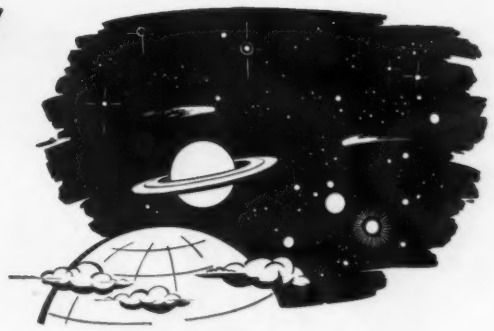
JOHNSON RAYON WARP SIZERS

will benefit even more by the lessons we are learning about synthetic yarns for war and their use in products for civilian purposes.

Charles B. Johnson MACHINE WORKS

PATERSON NEW JERSEY

No Limit!



Possibilities for the profitable application of electric motor-drive to production processes of many kinds today are almost without limit. Reliance engineering experience has proved that electric motors, instead of being merely convenient and economical sources of power, can be made to do many things which formerly called for complicated mechanical hook-ups and controls. Moreover, they are doing the work better, more economically and with improvement in the quality of the finished product.

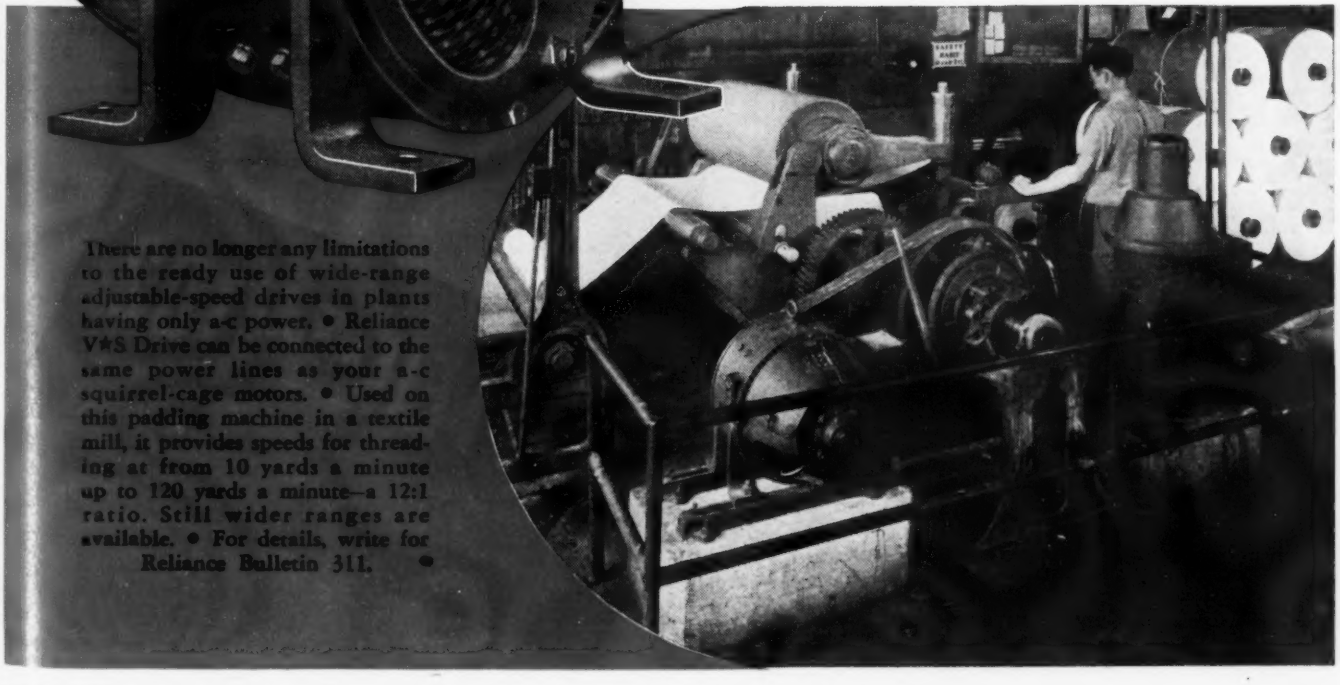
Some of the results that Reliance engineers have helped to accomplish in applying electric motor-drive are likely to suggest interesting new possibilities to you. We will be glad to tell you about them.

RELIANCE ELECTRIC & ENGINEERING CO.

1088 Ivanhoe Road · Cleveland, Ohio

Birmingham • Boston • Buffalo • Chicago • Cincinnati • Detroit
Greenville (S. C.) • Houston • Los Angeles • Minneapolis • New York
Philadelphia • Pittsburgh • Portland (Ore.) • St. Louis • Salt Lake City
San Francisco • Syracuse • Washington, D. C. • other principal cities

RELIANCE A-C D-C MOTORS



There are no longer any limitations to the ready use of wide-range adjustable-speed drives in plants having only a-c power. • Reliance V*S Drive can be connected to the same power lines as your a-c squirrel-cage motors. • Used on this padding machine in a textile mill, it provides speeds for threading at from 10 yards a minute up to 120 yards a minute—a 12:1 ratio. Still wider ranges are available. • For details, write for Reliance Bulletin 311. •

The Model 102's 7 Flexibility Features

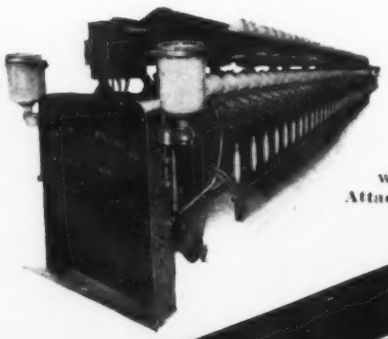
1. It will wind any kind and any count of staple yarn from fine combed cotton or rayon for tropical fabrics to heavy wool yarns for arctic cloths .
2. It will wind a straight base cone for warping or a convex base cone for knitting with a simple adjustment.
3. It will produce 9 different angles of wind from 9° to 18°. Important if you radically change your count or type of yarn.
4. It will wind package dyed yarn, even if damp. No jumping out of guides.
5. It will wind emulsion treated yarn. In fact, it is frequently equipped with an emulsion attachment.
6. Changeovers from cones to tubes, or vice versa, are comparatively inexpensive.
7. One side can wind cones and the other tubes, if desired.

This machine also gives you TWICE THE PRODUCTION WITH ⅓ LESS COST as compared with older models.

It is available now to mills able to obtain the required preference rating.

Millions of years ago the Protoceratops was a thriving species of reptile. Then Mother Nature's economy changed, but the Protoceratops couldn't change with it. Result—just a has-been!

The modern business which overlooks flexibility faces the same fate as the Protoceratops, for rapid change is the order of the day. That is why we recommend the Foster Model 102, which is the most flexible winder of its type on the market.



Foster Model 102 with Conditioning Attachment

FOSTER MACHINE CO.

WESTFIELD, MASS.

Southern Office:
Johnston Bldg., Charlotte, N. C.

FOSTER MODEL 102

FOR WINDING COTTON · WOOL · WORSTED · MERINO
MERCERIZED · SPUN SILK AND SPUN RAYON YARNS

When every second *counts*

Through the windows of the waistline tower in any big railroad switch yard you see an unending stream of traffic pouring in both directions. The senior towerman may supervise close to two hundred moves in a single hour. At the rate of three per minute he must visualize every track, every siding, every spur and derail . . . he must make every second count.

Troops must be moved to embarkation ports . . . guns and ammunition transported to our armed forces . . . fuel oil for ships and gasoline for our air forces must be delivered without delay.

Increasing war demands threaten a critical situation for freight transportation, especially tank cars. You can help to avert it by speeding the turn-around of these cars . . . by making every second count.

COLUMBIA CHEMICALS

PITTSBURGH PLATE GLASS COMPANY
COLUMBIA CHEMICAL DIVISION
GRANT BUILDING • PITTSBURGH 19, PA.

CHICAGO • • • BOSTON • • • ST. LOUIS • • • PITTSBURGH • • • NEW YORK • • • CINCINNATI
CLEVELAND • • • MINNEAPOLIS • • • PHILADELPHIA • • • CHARLOTTE

1,000 U. S. BOMBERS over Berlin may consume 1,200,000 gallons of gasoline—the capacity of a train of 120 tank cars. A fighter plane uses 100 gallons of gasoline in an hour . . . our big four-engine bombers eat up just twice as much. And a single mechanized division in action may use two tank cars of fuel per hour. No wonder these cars are at a premium!

THE INCREASING TEMPO of the war in the Pacific and the absence of pipe lines to our west coast are placing additional burdens on the rail transportation by tank car of fuel oil and gasoline destined for this theater. Each American soldier overseas requires an average of 50 gallons of petroleum products per week. The delivery of supplies alone involves enormous quantities of fuel . . . each Liberty Ship burns about 40 tank cars of fuel oil for the Australasia round trip.

COLUMBIA TANK CARS are working overtime, too, supplying the Liquid Caustic Soda and Liquid Chlorine essential in the manufacture of so many war materials. Incidentally, Columbia introduced the special car which first made practical the transportation of 73% Liquid Caustic Soda without metallic contamination. Principal features of this car are the heavy insulation which keeps the liquor from freezing and the special lining. The use of 73% Liquid Caustic Soda has enabled Columbia customers to save many thousands of dollars.

THANKS to Columbia customers for their splendid co-operation in handling tank cars which—combined with Columbia's stepped-up loading schedules, increased supervision and expediting of equipment—resulted in a 1943 turn-around performance that was excellent in view of transportation conditions. We know that all customers will co-operate with us toward a still better record so necessary to the war effort.

COLUMBIA CHEMICALS include Soda Ash, Caustic Soda, Sodium Bicarbonate, Liquid Chlorine, Silene EF (Hydrated Calcium Silicate) Calcium Chloride, Soda Briquettes, Modified Sodas, Caustic Ash, Phosflake, Calcene T (Precipitated Calcium Carbonate) and Calcium Hypochlorite.

RAYON REPORTS

Published Monthly by American Viscose Corporation, New York, N. Y. APRIL, 1944

SURVEY SHOWS IMPORTANT SAVINGS MADE BY HOSIERY MANUFACTURERS WITH "AVCONIT"

KNITTERS PRAISE FINISH THAT CONTROLS YARNS

A recent survey made among leading hosiery manufacturers by the American Viscose Corporation shows definitely superior results in production and efficiency obtained from "Avconit" processed yarn.

As evidenced by replies to questionnaires sent to many hosiery manufacturers there is a sharp reduction in production waste due to yarn difficulties when rayon yarn for hosiery is treated with "Avconit."

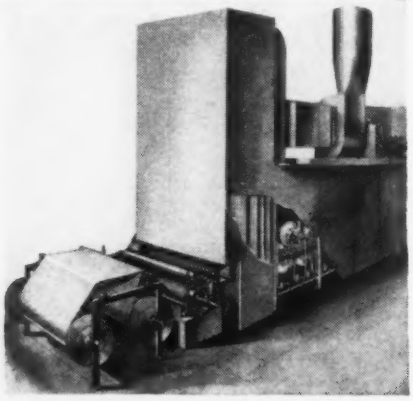
Press-offs were one-sixth as numerous with "Avconit" treated yarn as with yarn not treated. As a result the waste was greatly reduced, the average saving per manufacturer contacted being 1542 pounds per month.

"Avconit" treated yarn has a very low abrasive factor which is important to manufacturers. The elimination of snarls results in much better performance on the knitting machine. This, in addition to the saving in waste, is said to cut down overhead costs and increase the efficiency, production, and earnings of employees.

NEW IMPREGNATING MACHINE DESIGNED BY BUTTERWORTH

Shown below is the new Butterworth Impregnating machine for treating rayon tire cord with latex rubber solution.

The rayon tire cord is impregnated with latex in the padder, then squeezed and



dried in continuous process. The solution is fed into the padder box from an expansion tank. The amount of pick-up is controlled by hydraulic pressure applied to the padder rolls, the pressure being recorded by an instrument.

Before entering the heating flue, the surplus solution is removed from the material by means of high pressure nozzles.

Among the advantages claimed for the Butterworth machine are that it requires less floor space than other machines of this type and that it is extremely fast and smooth in operation. It operates at a speed of better than 25 yards a minute. For information, write to H. W. Butterworth & Sons Co., Philadelphia 25, Pa.

A.V.C. WORKING TO IMPROVE TRICOT PROCESS

The American Viscose Corporation, recognizing the economic importance of tricot knitting, is directing considerable effort toward improving the technique of this process. One result of this research is the delivery of yarn in warps, ready for knitting, to tricot knitters. Another result is the development of a new and faster method of drying knitted fabrics. At the present time, the possibilities of more productive and more efficient tricot knitting machines are being explored. Thus, the American Viscose Corporation is making a definite contribution to the advancement of an industry that is destined to assume increased importance in the textile field.

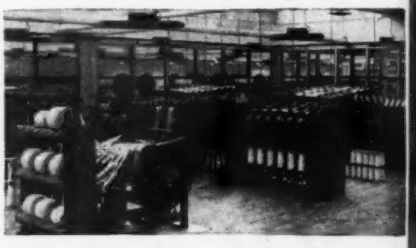
VINYON** TESTS POINT TO POSTWAR USES IN GIRDLES, BRAS, BATHING SUITS

Experimental lots of Vinyon E have been delivered to corset and brassiere producers, who have been proceeding with test runs to establish proper procedure for the handling of this elastic yarn in their postwar output. Also, a limited number of light-weight foundation garments and bathing suits have been distributed for consumer wear tests. Early results have been encouraging and foreshadow acceptance for elastic vinyl resin yarn after the war both by manufacturers and consumers.

Although a small quantity of Vinyon is going into surgical bandages and supports for non-military purposes, these experiments mark the first release of the yarn for other non-military purposes.

TEXTILE RESEARCH DEPARTMENT DRAWS VISITORS FROM ALL PARTS OF WORLD

Widespread interest in the Textile Research Department, at the Marcus Hook plant of the American Viscose Corporation, is evidenced in a recapitulation of



visitors during the past six months. Nearly 500 people have come to observe the work being done here. 23 states of the Union, as well as Australia, Canada, China, Cuba, England, Mexico and South America are listed in the Guest Register.

The purpose of this department is to provide technical aid for the textile industry in production and finishing problems, to develop new textile practices and equipment, to develop new fibers and yarns in cooperation with other departments, to assist fabric development by execution of new fabrics to their design and to maintain good performance of our products.

**T.M.—C.&C.C.C.

MAKE USE OF 4-PLY SERVICE

1 **PRODUCT RESEARCH**
Helps you get the right yarn.

2 **FABRIC DEVELOPMENT**
Helps you design new fabrics.

3 **TEXTILE RESEARCH**
Helps solve production and finishing problems.

4 **"CROWN" TESTED**
Helps provide scientific selling facts.

AMERICAN VISCOSE CORPORATION

Producer of
CROWN* *Rayon Yarns and Staple Fibers*

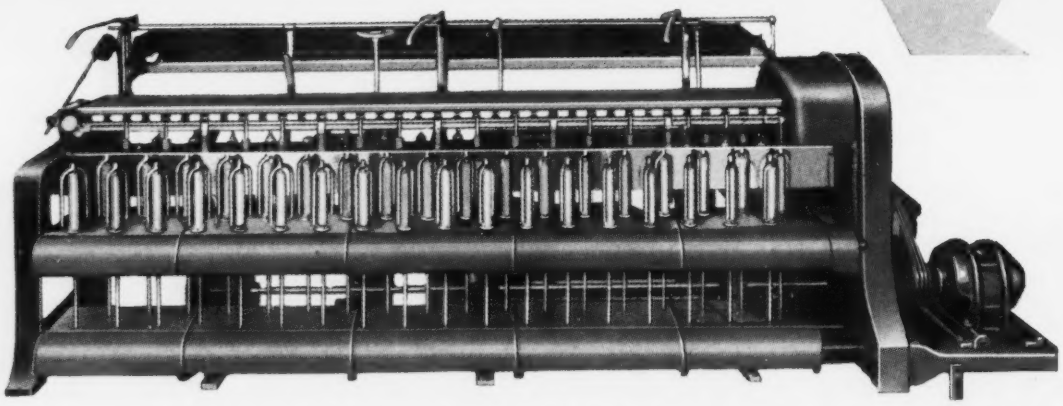
Sales Offices: 350 Fifth Avenue, N. Y. C. 1; Providence, R.I.; Charlotte, N.C.; Philadelphia, Pa.

Plants at: Marcus Hook, Pa.; Roanoke, Va.; Lewistown, Pa.; Nitro, W. Va.; Parkersburg, W. Va.; Meadville, Pa.; Front Royal, Va.

*Reg. U. S. Pat. Off.

A 4 in 1
Colored Yarn Service
HOW IT SAVES YOU TIME, TROUBLE AND MONEY
Franklin Process offers you four sources of colored yarns of one quality. No matter which plant fills your order, your yarns will be dyed with the same formula for established shades and by the same process. Here are five reasons why this 4 in 1 service saves you time and trouble (and time and trouble are money).
1 All your eggs are NOT in one basket; the quality of the product is the same no matter which plant processes it.
2 You benefit from both special and general experience:—special because each of our plants specializes to a large extent in serving one or more branches of the textile industry; general because the experience of one plant becomes the experience of all four through our "shuttle System",—exchange of information.
3 We can supply yarn as well as dyeing, thus concentrating responsibility.
4 We dye by the original Franklin Process, which has revolutionized yarn dyeing.
5 We offer you not only the largest package dyeing capacity in the world, but also the greatest variety of machine sizes. Thus, we can handle both large and small orders equally well.
If you make fabrics requiring cotton, worsted, spun rayon, or blended colored yarns, contact our nearest office and we'll tell you which plant can best serve you.
Franklin Process
LARGEST PACKAGE DYERS IN THE WORLD
Providence • Philadelphia • Greenville • Chattanooga — New York Representative, 40 Worth St., Chicago Representative, 100 West Munroe St.

H & B HIGH-DRAFT ROVING FRAME



Put it on your PREFERRED LIST for After the War!

ONE OF THESE MACHINES will replace two or three conventional speed frames. It is sturdy and of modern design. Mechanical features include the following:

Exceptionally strong differential gearing ... draft changes quickly made ... simplified builder, easily adjustable ... articulated quiet chain bobbin shaft drive ... superior finish, including polished non-rusting metallic clearer covers ... single or double sliver lifting rolls ... angle iron creels.

The frame was specially designed to accommodate our High-Draft Roving System, 4 or 5 roll, with Patented Scroll Condenser. This system will produce 3.00 to 6.00 hank roving from 50 to 60 grain sliver in ONE OPERATION. It is drafting cotton up to 30 on speeders and up to 16 on intermediates. With mixtures, such as rayon and cotton or rayon and wool, some installations are drafting as high as 48 in one operation.

Our Bakelite Patented Scroll Condenser has greatly simplified high drafting of sliver. It eliminates static and prevents the flaring and spreading of the fibres by condensing them into a compact sliver without disturbing parallelization, and gives just enough false twist to allow better control in the drafting zone.

The H & B High-Draft Roving Frame not only greatly reduces the investment required in the card room, but also frequently increases production as compared with the equipment it replaces and invariably reduces manufacturing cost. This reduction has been as much as 6/10 of one cent. per lb. of yarn.

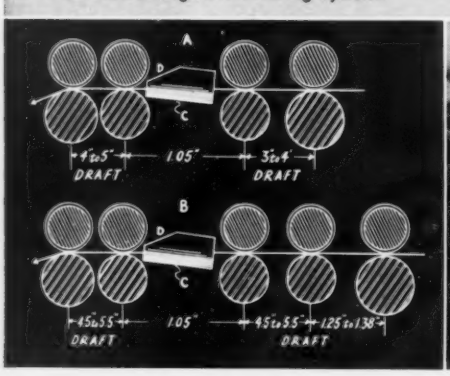
Put this frame on your preferred list for after the war and let us know about your plans NOW, so you won't have to wait too long for delivery after we are permitted to accept orders for textile machinery.

★

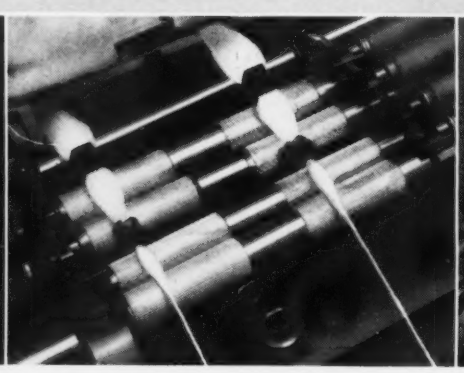
H & B AMERICAN MACHINE CO.
PLANT AT PAWTUCKET, RHODE ISLAND

Boston Office, 161 Devonshire Street; Charlotte Office, 1201-3 Johnston Bldg., Atlanta Office, 815 Citizens & Southern National Bank Bldg.; Export Dept., United States Machinery Co., 115 Broad Street, New York, U. S. A.

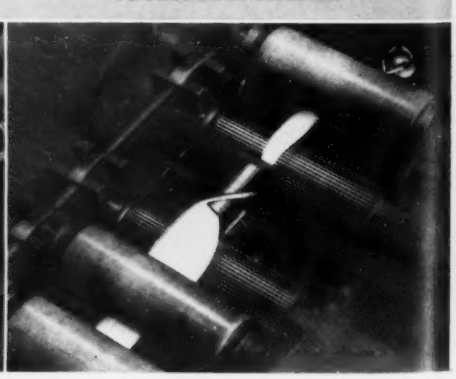
Diagrams showing drafts obtainable with 4 Roll and 5 Roll High-Draft Roving Systems



4 Roll High-Draft Roving System with Patented Scroll Condenser



5 Roll High-Draft Roving System with Patented Scroll Condenser



SEVEN-LEAGUE

SEVEN LEAGUE BOOTS have been donned by this nation's dyers and dyestuffs makers since we entered the war. Speed and production became the order of the day. Under the pressure of war we've greatly increased production of Ponsol dyes for military requirements . . . helped develop speedier, more economical methods of application.

During this period, it should be mutually helpful for us to work together. Our laboratories can help you solve your wartime technical problems. And we may, in addition, gain the experience and knowledge which will guide us in advance, to profitable solutions of tomorrow's problems.

E. I. du Pont de Nemours & Co. (Inc.), Organic Chemicals Department, Dyestuffs Division, Wilmington, Delaware.

Du Pont Dyestuffs

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

DU PONT DYESTUFFS

LAUREL Hosiery Finishes

improve the quality of rayon and cotton full-fashioneds

You can improve your hosiery quality and gain greater customer satisfaction with mill-tested Laurel Hosiery Finishes. Custom-fit to your processing problems, available for immediate delivery, Laurel Hosiery Finishes help you meet the demands of these war-restricted days.

Laurel Emulsions give more even cotton yarns, clearer stitch and proper regain.

Laurel Rayon Oils and Finishes help control rayon twist and stretch, prolong the life of the fibers.

Laurel Hosiery Finishes produce the smooth finish that is the pride of the American woman whether on parade or promenade.

Send for trial order and formula today.

SPEED VICTORY—BUY WAR BONDS

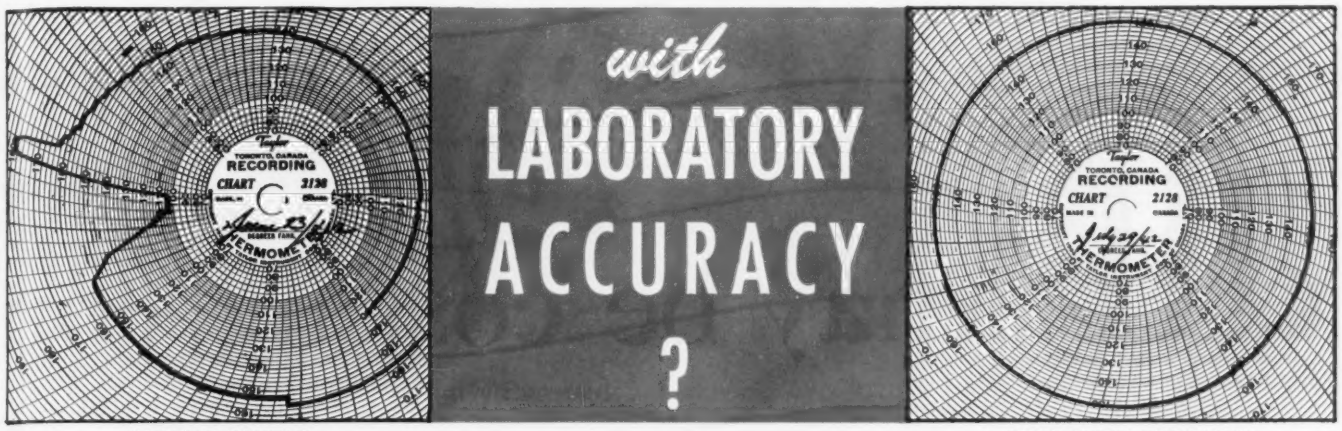
SOAPS • OILS • FINISHES

Laurel

SOAP MANUFACTURING CO·INC·

WM. H. BERTOLET'S SONS ESTABLISHED 1909
TIOGA, THOMPSON & ALMOND STS., PHILADELPHIA, PA.
WAREHOUSES: PATERSON, N. J., CHATTANOOGA, TENN., CHARLOTTE, N. C.

Why not Process Temperatures



WITHOUT CONTROL

WITH SARCO REGULATOR

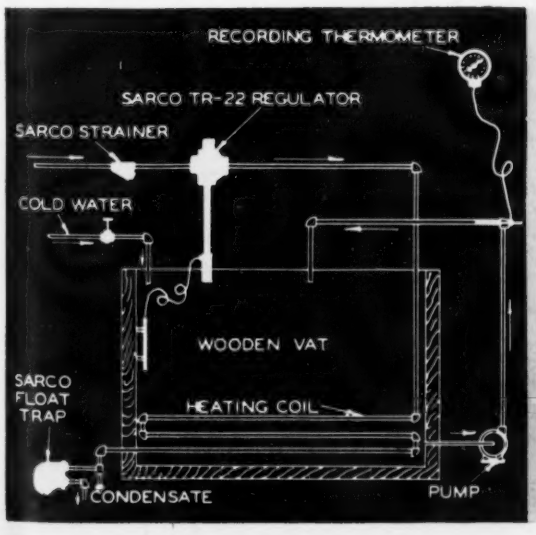
You would not expect the analysts in your production control laboratory to work without good thermometers, yet there are still hundreds of plants lacking automatic temperature control of vital heating or cooling operations.

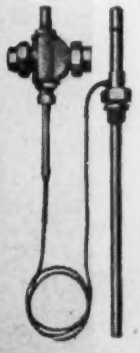
It is a management problem

The men you hold responsible for production usually are not steam engineers and your steam man will not survey the plant for temperature improvements unless he is asked.

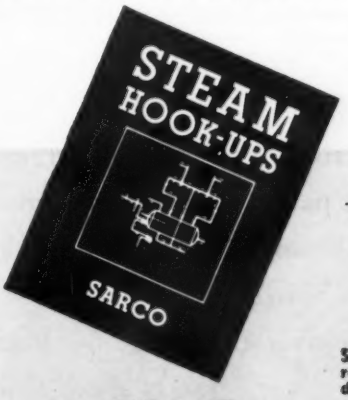
That's why we say, let a Sarco man look over your process equipment. He can suggest simple, inexpensive controls which will give you laboratory accuracy right in the plant. At the same time, quantity and quality of production will be increased—spoilage and waste will be eliminated.

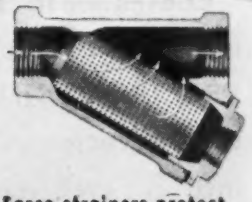
Here is what was done in Canada recently. A Sarco self-operated temperature regulator now assures hot water at constant temperature to a large plate washer, where hand control formerly allowed fluctuations up to 40°F. (see actual charts above). The regulator is assisted by a Sarco float-thermostatic steam trap which removes condensate continuously without disturbing the control. It is only one example of how Sarco combines one of four distinct types of steam traps with simple temperature control. Many more are shown in the new edition of our manual "Steam Hook-Ups," yours for the asking.



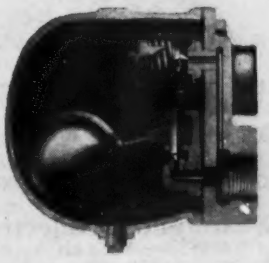


Sarco self-operated temperature regulators require no auxiliary power, such as compressed air or electricity, to operate. Easy to buy and install, simple to use.





Sarco strainers protect regulator valves against damage by scale or dirt.



Sarco float-thermostatic steam traps remove condensate continuously, without shock. Fitted with thermostatic air vent to make air binding impossible.

Represented in Principal Cities

SARCO COMPANY, INC., 475 FIFTH AVENUE, NEW YORK 17, N. Y.

SARCO CANADA, LTD., 85 Richmond Street, West, TORONTO, ONTARIO

SARCO SAVES STEAM

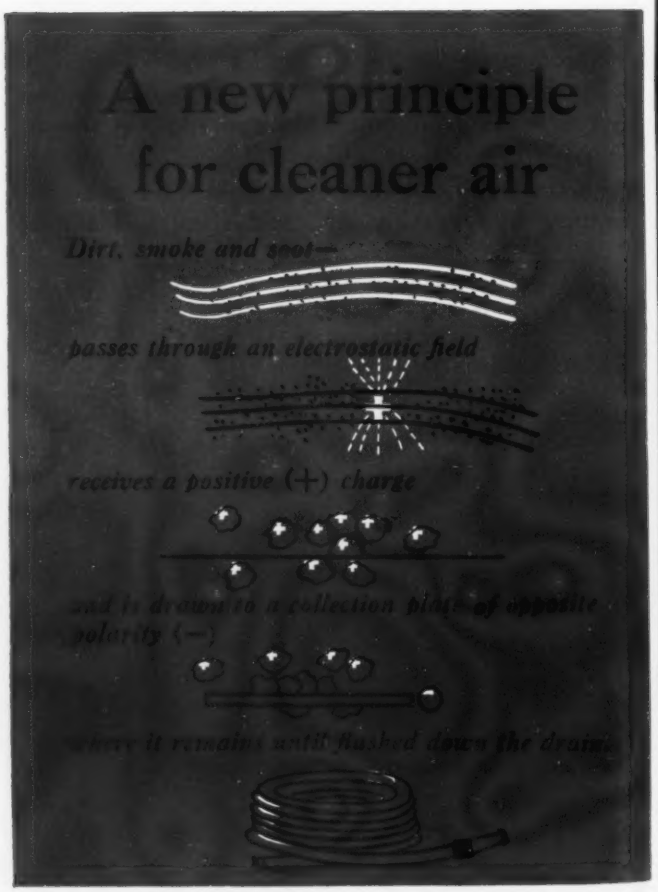
air. .may be costing you plenty!

The air in your plant may be costing you plenty. Air-borne particles, 100 times smaller than the eye can see, cause shutdowns, ruin products, contaminate atmospheres and reduce the efficiency of your employees.

Conventional air cleaners can't remove these microscopic particles. But Westinghouse PRECIPITRON, cleaning air electrostatically, traps particles as small as 1/250,000 of an inch . . . even removes haze, welding fumes, tobacco smoke.

Really clean air is vital to production . . . to good working conditions and good health. Check the advantages of PRECIPITRON now . . . for war production or for early postwar uses in other fields. Westinghouse Electric & Mfg. Co., Dept. 7-N, East Pittsburgh, Pa.

J-04002


A new principle for cleaner air
Dirt, smoke and soot—
passes through an electrostatic field
receives a positive (+) charge
and is drawn to a collection plate of opposite polarity (−)
where it remains until flushed down the drain

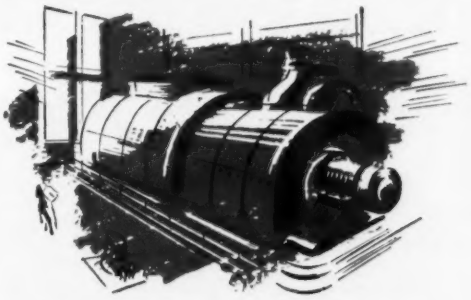
Westinghouse Precipitron

PLANTS IN 25 CITIES OFFICES EVERYWHERE

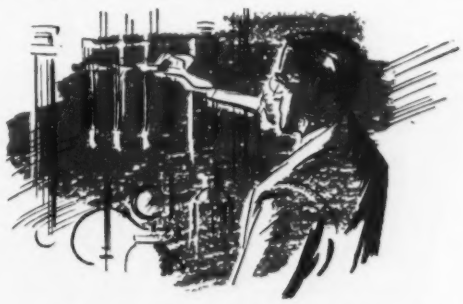
Precipitron *Applications*

MACHINERY & PRECISION INSTRUMENT PLANTS . . . Precipitron sweeps the air clean of tiny abrasives and corrosive particles that damage superfinished surfaces. In binocular assembly for example, Precipitron prevents dust from entering the enclosure between lenses which would later settle on lens surface.

TEXTILE MILLS . . . Installed in mills as part of the air humidifying and distributing system, Precipitron removes damaging particles before they soil yarn or thread. All smoke, dirt, soot and dust is banished during drying, spinning, and winding operations. Precipitron operation is simple . . . noiseless.

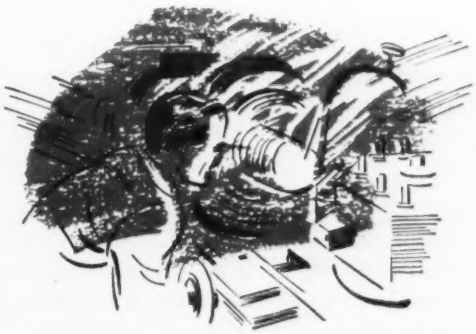


STEEL MILLS—POWER PLANTS—SUBSTATIONS . . . Precipitron effectively reduces maintenance shutdowns by eliminating the excessive dirt on machine windings which causes temperature rises and fires . . . prevents electrical breakdowns caused by leakage over the surface of dirty insulation . . . keeps machine ventilating systems dirt free.



CHEMICAL PLANTS . . . In plants where microscopic specks can cause imperfections in products and processes . . . or wherever miasma-free conditions are essential . . . Precipitron is a necessity. For example, Precipitron is being used in military photographic labs where a speck of dust might hide a Nazi factory in an aerial photo.

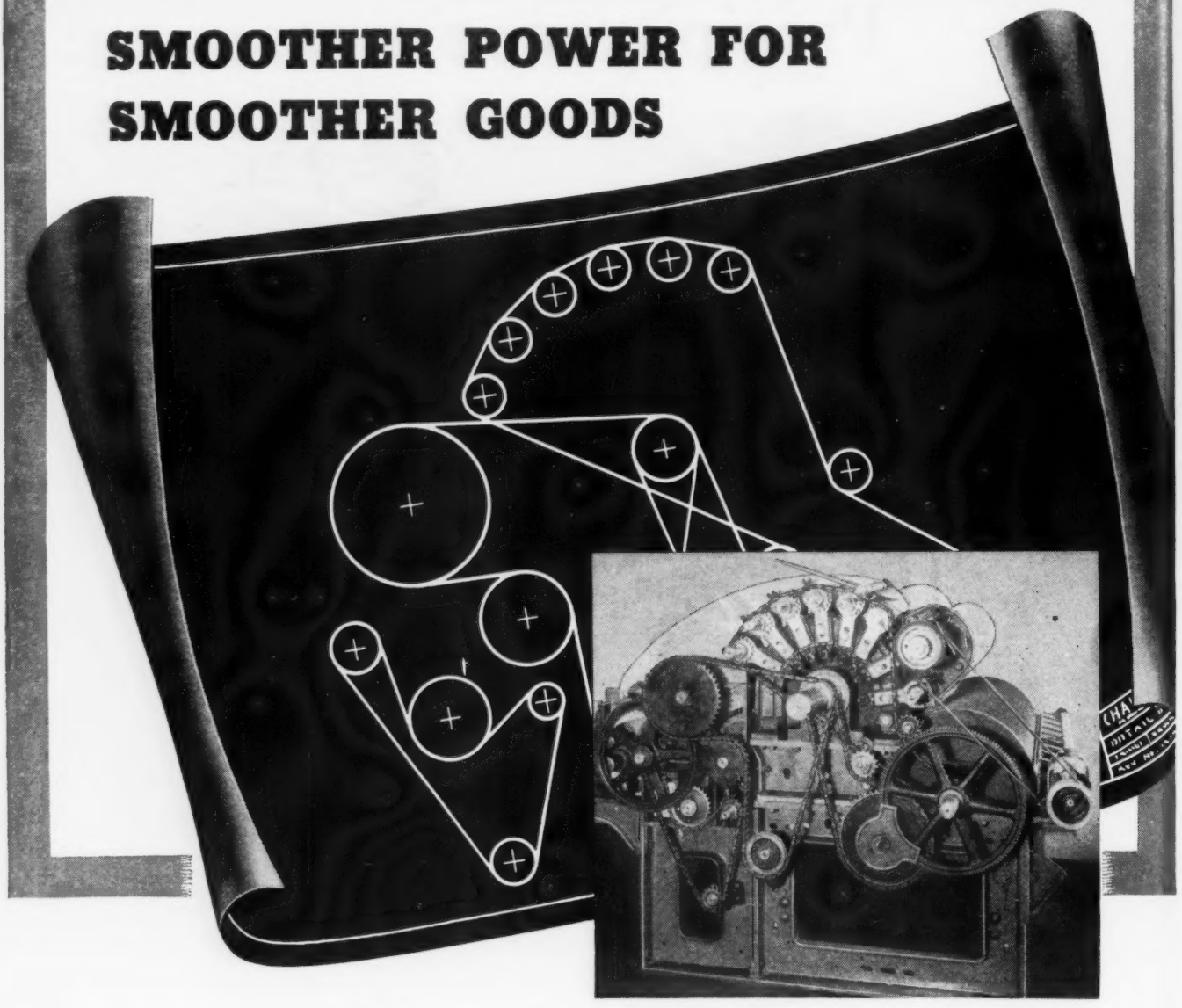
LABORATORIES . . . Regardless of outside air conditions, laboratories equipped with Precipitron enjoy perfectly cleaned air. The risk of errors in analysis . . . damage to sensitive equipment . . . threat to manufacturing or assembly operations due to dirt-laden air is positively eliminated.



MACHINE TOOL INSTALLATIONS . . . Oil mist caused by high-speed cutting, grinding and machining is dispelled by Precipitron. Condensation of oil on lighting fixtures and bus ducts is eliminated . . . oil coolant can be recovered for re-use. Exhaust air is cleaner than surrounding shop air and can be re-circulated.

the Electronic Air Cleaner WESTINGHOUSE

SMOOTHER POWER FOR SMOOTHER GOODS



Removing foreign material . . . cleaning and making goods smoother, this garnett is driven by smooth, jerk-free power, for Baldwin roller chain belts are accurately timing and driving the many intricate parts.

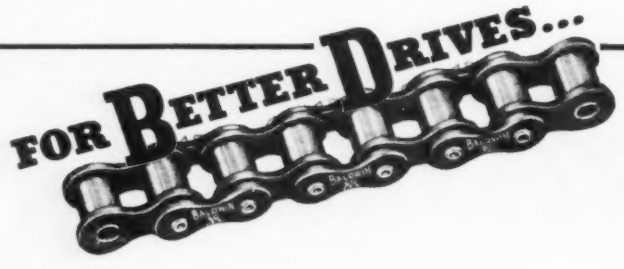
PROVIDING positive, slip-free power, Baldwin roller chain belts assure a smoother, more even product. They perfectly time the many intricate functions of the garnett, eliminating wasted power common to other methods of power transmission. Baldwin drives are cleaner and collect less dust and dirt.

Baldwin roller chain belts are easily installed on long or short centers . . . on cards, garnetts, pickers, twisting frames, printing machines, in fact, throughout the textile mill. Wherever they are used, they help cut operating costs . . . assure a smooth finished product.

BALDWIN ROLLER CHAIN BELTS GIVE YOU THESE ADVANTAGES:

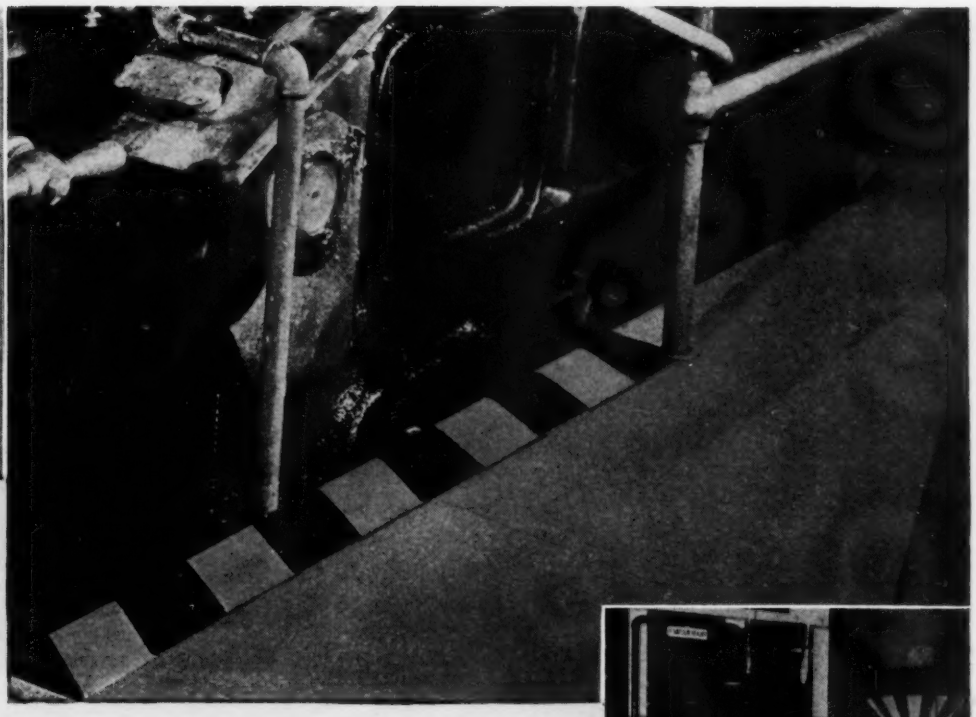
1. **Maximum shock-absorbing ability.**
2. **Infrequent, low-cost, easy maintenance.**
3. **No hazard from static electricity—or overheating.**
4. **Simplicity of installation and replacement.**
5. **Quiet in operation—do not create vibration.**

For complete information on Baldwin roller chain belts, call your Baldwin Man or write for your copy of Catalog M. Baldwin-Duckworth Division of Chain Belt Company, 346 Plainfield Street, Springfield 2, Mass.



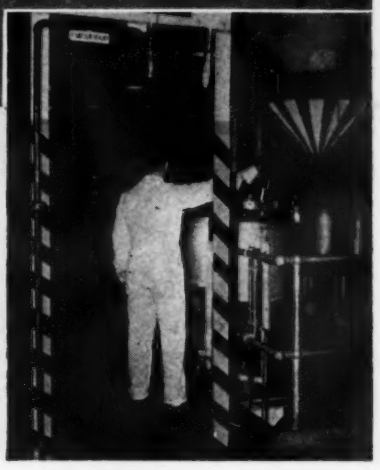
BALDWIN

ROLLER CHAIN BELTS



(*Above*) Overhead obstructions in passageways and aisles are easy to see and avoid when marked with alternate black and yellow bars according to the Safety Color Code.

(*At Right*) This open pit has been identified as a hazard by the markings of alternate black and yellow bars on the edge of the adjacent floor area.



Safety Color Code at Work. Alternate black and yellow bars, symbol of High Visibility Yellow in the Color Code, point out traveling overhead equipment and posts in the entrance to passageways.

DU PONT PRESENTS A SAFETY COLOR CODE FOR INDUSTRY

A uniform system of color signals with advantages recognized by leading safety engineers and proved by factory use. An adjunct to "Three Dimensional Seeing."

Here is a plan to make color serve as a visual aid to safety. A simple method of applying six colors to warn of various industrial hazards and to cut industry's high accident toll . . . to mark first aid and fire protection equipment more clearly . . . stimulate good housekeeping in a plant . . . and guide the movements of rapidly moving workers in their daily jobs.

WHAT THE SAFETY COLOR CODE IS. It is a system for safety identification built around colors that are commonly recognized and have high visibility and attention value. Du Pont selected six standard colors, assigned names and symbols to them and gave them specific jobs to do. Here they are:

High-Visibility Yellow: To indicate strike-against, stumbling, or tripping hazards.

Alert Orange: To mark parts of machines that might cut or crush a worker.

Safety Green: To identify first aid equipment, dispensaries, and the location of safety devices.

Fire-Protection Red: To point out fire-protection equipment.

Precaution Blue: To warn workers against use of equipment under repair, or machinery that should not be started.

Traffic White: To mark aisles, storage places and waste receivers.

ANY PLANT CAN USE THIS SYSTEM. The principles of the Safety Color Code are adaptable to any factory, as a supplement to present guarding and protective equipment. The proof of this is in its use today in many plants where it helps both experienced and green employees to keep alert and ready for any emergency.

The Code is a development of Du Pont and its industrial color consultant, working with leading safety engineers. It augments Du Pont "Three Dimensional Seeing," so important in highlighting working surfaces of machines. Every plant will profit by adoption of the Du Pont Safety Color Code.

DU PONT
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SEND THIS COUPON TODAY for the new booklet which tells a complete story of the Du Pont Safety Color Code. See how six standard colors can be used to make hazards less dangerous and reduce accidents. You will find it interesting and profitable reading.

E. I. du Pont de Nemours & Co. (Inc.)
Finishes Division, Dept. TW44
Wilmington 98, Delaware

Send me your new booklet on the Safety Color Code.

Name_____

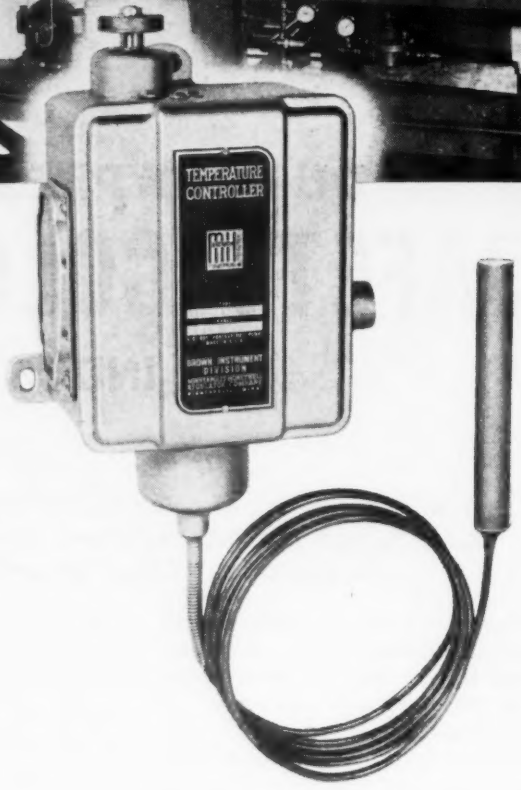
Title_____

Company_____

Address_____

City_____ State_____

Assures Uniform Luster and Color in DRYING



At the Gilt Edge Textile Mills, Inc., New Bedford, Mass., Brown Non-Indicating Temperature Controllers shown above automatically maintain correct drying temperatures and insure uniform quality, luster and color.

By holding the temperature of the can, tenter skein, loop and stock dryers at the desired point, users of Brown Non-Indicating Controllers have eliminated problems of "harshness" and "wet spots" resulting from improper drying temperatures. Likewise, substantial savings in steam and increased production have been effected.

The Brown Non-Indicating Air-Operated Temperature Controller employs a one-pipe air supply system. It is provided with an adjustable throttling range of 1 to 10%. The calibrated scale permits setting the control point at the desired temperature by a simple turn of the external adjusting knob. A change-over link provides a simple means of changing the controller from a direct-acting to a reverse-acting instrument or vice versa.

These controllers are available for both temperature or pressure and can be furnished in a wide variety of ranges for practically all textile processes.

Rugged and dependable . . . operates under extremely adverse atmospheric conditions. Small, compact and easy to install may be mounted adjacent to the control valve if desired.

For information write the Brown Instrument Company, 4509 Wayne Avenue, Philadelphia, Pennsylvania, a division of Minneapolis-Honeywell Regulator Company, Minneapolis, Minnesota. Offices in all principal cities. 119 Peter Street, Toronto, Canada—Wadsworth Road, Perivale, Middlesex, England—Nybrokajen 7, Stockholm, Sweden.

Instruments by **BROWN** *and Controls by*

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Manufacturers may face the post-war adjustment period with greater confidence, if supported by the financial and credit services of a strong factoring organization.

Factoring enables a manufacturer to retain his own capital funds in his own business, instead of providing capital for the customers who buy his products; — at the same time factoring provides for such customers the usual credit terms on their purchases.

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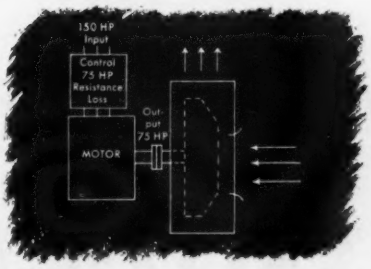
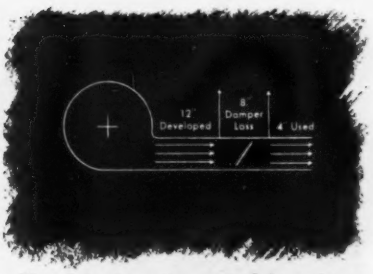
VARIABLE SPEED MOTOR CONTROL



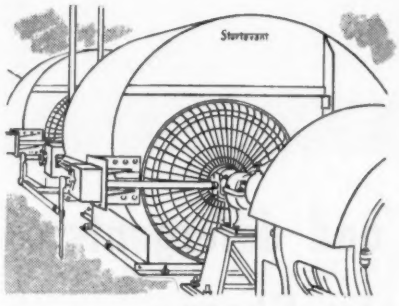
In considering a variable speed motor to drive your mechanical draft fans, remember you can develop a *limited* selection of pressure-volume characteristics to meet combustion requirements. The headaches start when, as frequently occurs, fan output *between* the motor step-speeds is desired. Another drawback is the expensive and extensive auxiliary equipment involved. And finally, when an a.c. variable speed motor operates at reduced speeds, its efficiency drops off rapidly.

DAMPER CONTROL



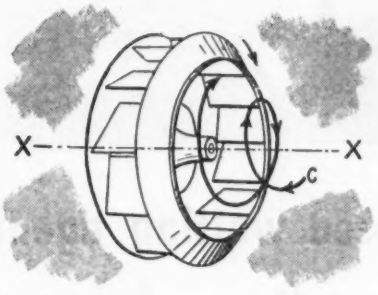
Placed in the system served by a fan as shown above, the damper throttles the flow of air delivered—and may be regulated to any point. But here's where inefficiency begins: A constant speed a.c. motor drives the fan at top speed at all times. Terrific pressure wastage is inevitable, and this waste is directly reflected in power costs. It is like a bearing without oil.

This is Sturtevant *Vane Control*



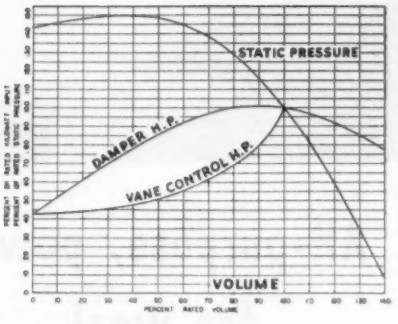
...All "Plus" Advantages!

Sturtevant Vane Control offers the major advantage of utilizing a constant speed a.c. motor with simple control and in addition permits regulation of the fan output to the exact volume of flow at the *exact* pressure needed. There is no wastage of power input as in a variable speed a.c. motor. There is no wastage of pressure as encountered in damper control. There is *more even* distribution of gases and ash to the fan wheel blades—prolonging life.



...instant response!

The adjustable vanes of Sturtevant Vane Control at the fan inlet can be set to give the entering air or gas a greater or lesser spin in the direction of rotation of the fan rotor. As the vanes open and close, the "twist" imparted to the air entering the rotor is de- or accelerated, correspondingly affecting the pressure-volume of the fan output *without* need for change in the speed of the fan or the motor. Vane Control permits *instantaneous* adjustment of air flow to meet the fluctuating requirements of the combustion system.



...saves power!

The above chart plainly shows the power savings which Sturtevant Vane Control enjoys over damper control. As the vanes close, the volume of air handled in the system is reduced —and the lessening fan output directly affects the input of the motor. Power savings are proportionate to the periods during which the system does not operate at full capacity. The majority of power plants have now adopted this form of control for their mechanical draft fans. It is also in demand for all types of industrial applications where fans are subjected to variable loads.

Let Sturtevant Help You Solve Your Post-War Draft Problems—*NOW!*

Today almost every utility and industrial power plant operator is faced with the tough task of producing power with equipment old before its years. Tomorrow there's going to be a *rush* to replace obsolete equipment. Sturtevant is ready to give you a head start now . . . to work with your plant engineers or post-war planning committee—without obligation. Sturtevant makes both Forced and Induced Draft Fans in the right types and sizes to meet all boiler and combustion specifications. They have established records for efficiency and economy in outstanding plants throughout the nation. Let our engineers work with you *now* to get *on the boards* the Sturtevant products you will need tomorrow.

B. F. STURTEVANT COMPANY • *Hyde Park, Boston 36, Mass.*

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Puts Air to Work

SYSTEMS and EQUIPMENT
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Heating
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Dust and Fume Control
Pneumatic Conveying
Vacuum Cleaning
Mechanical Draft

All-purpose, powdered wetting agents and detergents for wool...for cotton...for synthetic fibers

● These new, highly efficient products have a wide range of uses. They give equally satisfactory results with *all* textile fibers. Used with WOOL for rinsing after fulling, scouring and dyeing yarn and piece goods, backwashing and dyeing tops. With COTTON for kier boiling, dyeing, soaping and scouring. With SYNTHETIC FIBERS for dyeing and scouring. These twin products can bring important, time-saving advantages to your business. Samples on application.

SELLOGEN A S
has extreme wetting properties.

SELLOGEN M
combines wetting with high detergency. Resistant to hard and limy waters—extreme cleansing action, excellent sudsing. Can be used in acid or alkaline solutions. Recommended as a penetrator in dyeing, in boiling off.

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TO NURSE OUR FIGHTING MEN—
TO SAFEGUARD THE NATION'S HEALTH

America's nursepower has responded magnificently. Replacement figures tell the story. At least 65,000 new student nurses must be recruited in the U. S. Cadet Nurse Corps this year to replace graduate nurses now serving in critical civilian areas and with the Armed Forces.

More than 40,000 nurses have joined the Army and Navy Nurse Corps . . . some civilian hospitals have closed units because they are unable to obtain nurses. The need is great and STANDARD is glad to promote this important recruitment work.

Much of STANDARD Yarn production has been recruited and is contributing to the comfort and well being of our fighting men and of our Allies.

When Victory is assured, an increased quantity of STANDARD Yarns will be released for civilian products.

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There's a *low ceiling on maintenance costs*

when the Gulf Lubrication Service Engineer is "in the picture"—

Maintenance costs tell the story of lubrication effectiveness — and maintenance costs hit new lows when Gulf Service Engineers are called in to help improve lubrication practice.

You get many other benefits, too, when you put a Gulf *specialist in scientific lubrication* to work on your lubrication problems. By cooperating with your production and maintenance personnel to insure the proper application of the right oils and greases for every moving part, a Gulf Service Engineer can help you decrease end breakage, lower power costs, reduce fire hazard, and improve production.

The helpful counsel of a Gulf Lubrication Service Engineer—and the complete Gulf line of more than 400 quality lubricants—are available to you through 1200 warehouses located in 30 states from Maine to New Mexico. Write, wire, or phone your nearest Gulf office today.

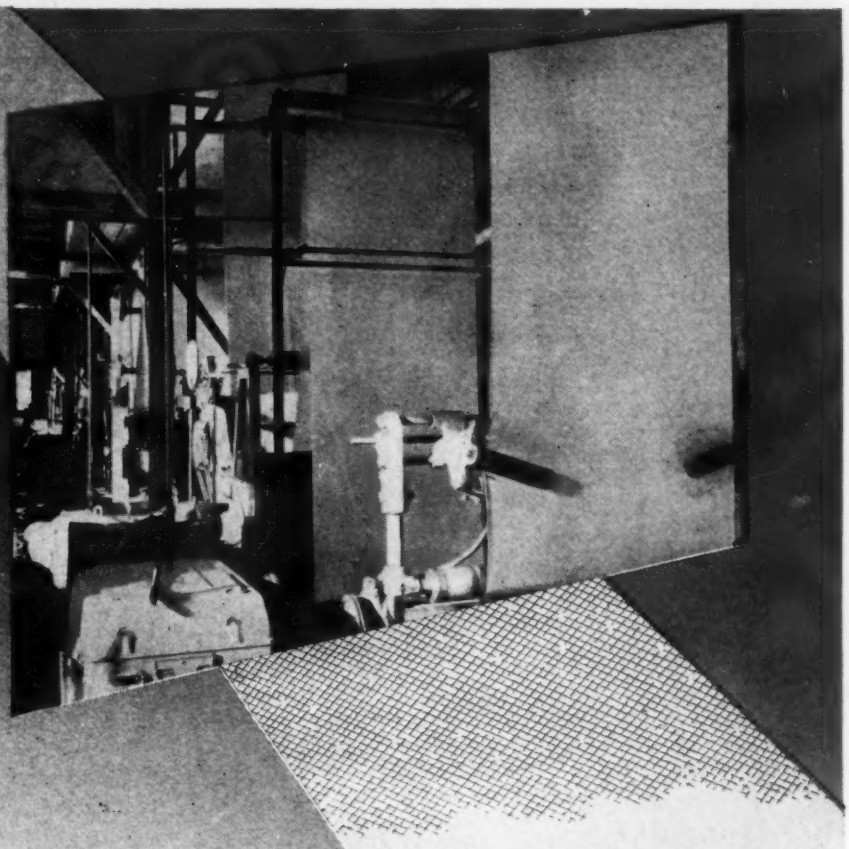
Actual photo of a Gulf Lubrication Service Engineer checking the lubrication of roll necks on roving frames in one of the largest card rooms in the South.

GULF INDUSTRIAL LUBRICATION

Back the attack— buy more War Bonds

GULF OIL CORPORATION · GULF REFINING COMPANY · Gulf Building, Pittsburgh 30, Pa.

DUPONT *CONTINUOUS* PEROXIDE BLEACH



MAKES UNIFORMS UNIFORM

. . . and speeds up production

THE IMPORTANT THING about making cloth for uniforms is to be sure that the fabric can be dyed evenly . . . and yet keep up with wartime production.

Du Pont offers for this job—Continuous Peroxide Bleach. This is the bleaching process that fits your production line schedule—and cuts the usual bleach of eight or fourteen hours to only *two hours*. Developed after long research by Du Pont engineers, it has now been proved practical by the success of installations in leading mills.

Uniformity is achieved by treating every yard of the material—as it flows through the continuous process—exactly alike. And by controlling such factors as time, speed, temperature, steam, absorption of caustic and peroxide.

Another problem in bleaching Army fabrics is keeping rejects and seconds as low as possible. Continuous peroxide bleach solves this through proper control of each step in the process.

Economical advantages include substantial savings on steam, water, chemicals. Changes from one fabric to another require only a simple adjustment.

Necessary equipment for the Continuous Peroxide Bleach is built by recognized manufacturers of textile finishing machinery, using Du Pont patented features. For information on the use of peroxides in continuous bleaching, write E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Dept., Wilmington, Delaware.

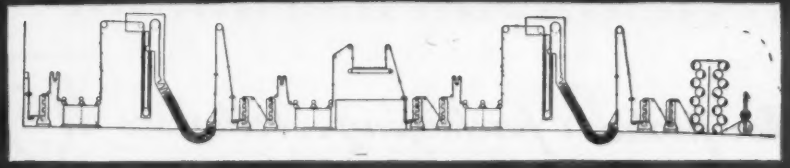
✓ THESE FEATURES

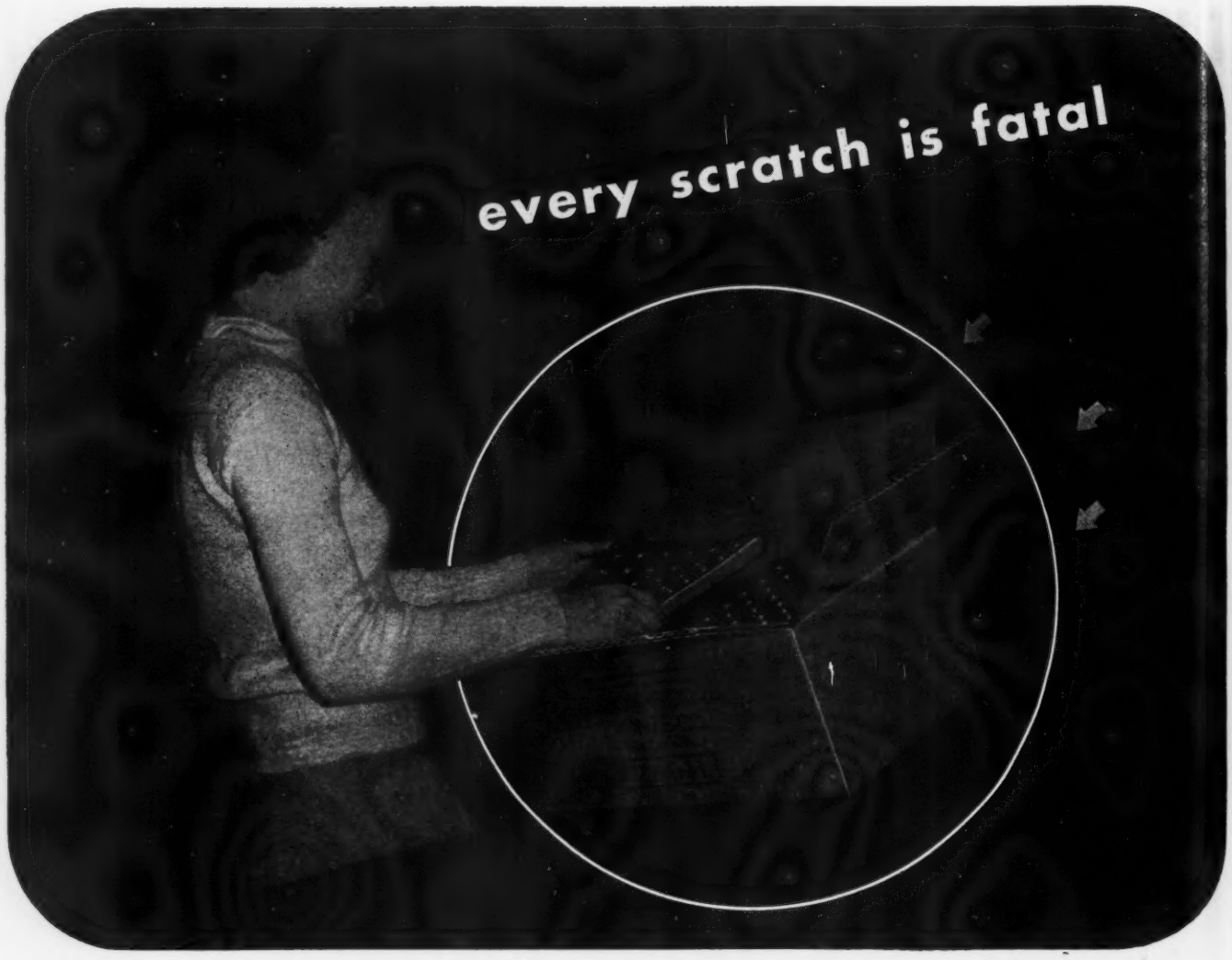
TWO-HOUR BLEACH — HIGH QUALITY
ECONOMICAL — UNIFORM BLEACH
FLEXIBLE — EASY CONTROL
MINIMUM SECONDS AND REJECTS

DU PONT

DU PONT PEROXIDES

Better Things for Better Living . . . Through Chemistry





Scratches are fatal because they mean rejections! In the case of bronze bearings and bushings for important war-time requirements, scratches occurred when these items came in contact with each other during various phases of production and shipment. The answer? An H & D war-time packaging development that provides positive product protection throughout the entire production and shipping cycle.

H & D Package Engineers are not only devoting much time to war-time packaging but are also turning their attention to the packages of tomorrow.

Post-war packages must receive the same careful planning as the products entrusted to them for safe arrival. Damaged deliveries never create customer good-will. So plan *now* for your post-war packages, and plan to use corrugated boxes that both protect and promote your products. H & D's vast storehouse of war-time packaging information is available now for planning peacetime packaging. Write today.

BUY WAR BONDS — YOUR SAFEST INVESTMENT

Tells HOW to PACK War Materials in Corrugated Boxes

The chief requirement in packaging war goods is to get as much essential material to specified destinations in the fastest, safest, most economical way. "How to PACK WAR MATERIALS in Corrugated Boxes" tells how H & D boxes are effecting new shipping efficiencies and economies in important war packaging assignments. Get copies of this and other H & D Little Packaging Library booklets by writing The Hinde & Dauch Paper Company, Executive Offices, 4430 Decatur St., Sandusky, O.

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For postwar packaging . . better see **H&D HINDE & DAUCH**

AUTHORITY ON PACKAGING . . . CORRUGATED SHIPPING BOXES

THE SAFE BLEACHING AGENT FOR ALL TEXTILE FIBRES . . .

Use Penn Salt 100 volume Hydrogen Peroxide as a bleaching agent for *all* commercial textile fabrics. It's safe, economical, reliable. Its uniform oxidizing action assures consistently excellent results.

Penn Salt Hydrogen Peroxide is supplied in 120 lb. carboys and 265 lb. drums.

Hydrogen Peroxide is now under allocation —WPB order M300, schedule 5. However, many industries are investigating this pure and mild bleaching agent for postwar uses.

For further information regarding Hydrogen Peroxide—or any Penn Salt Product—write us.

OTHER PENNSYLVANIA SALT CHEMICAL PRODUCTS USED IN THE TEXTILE INDUSTRY

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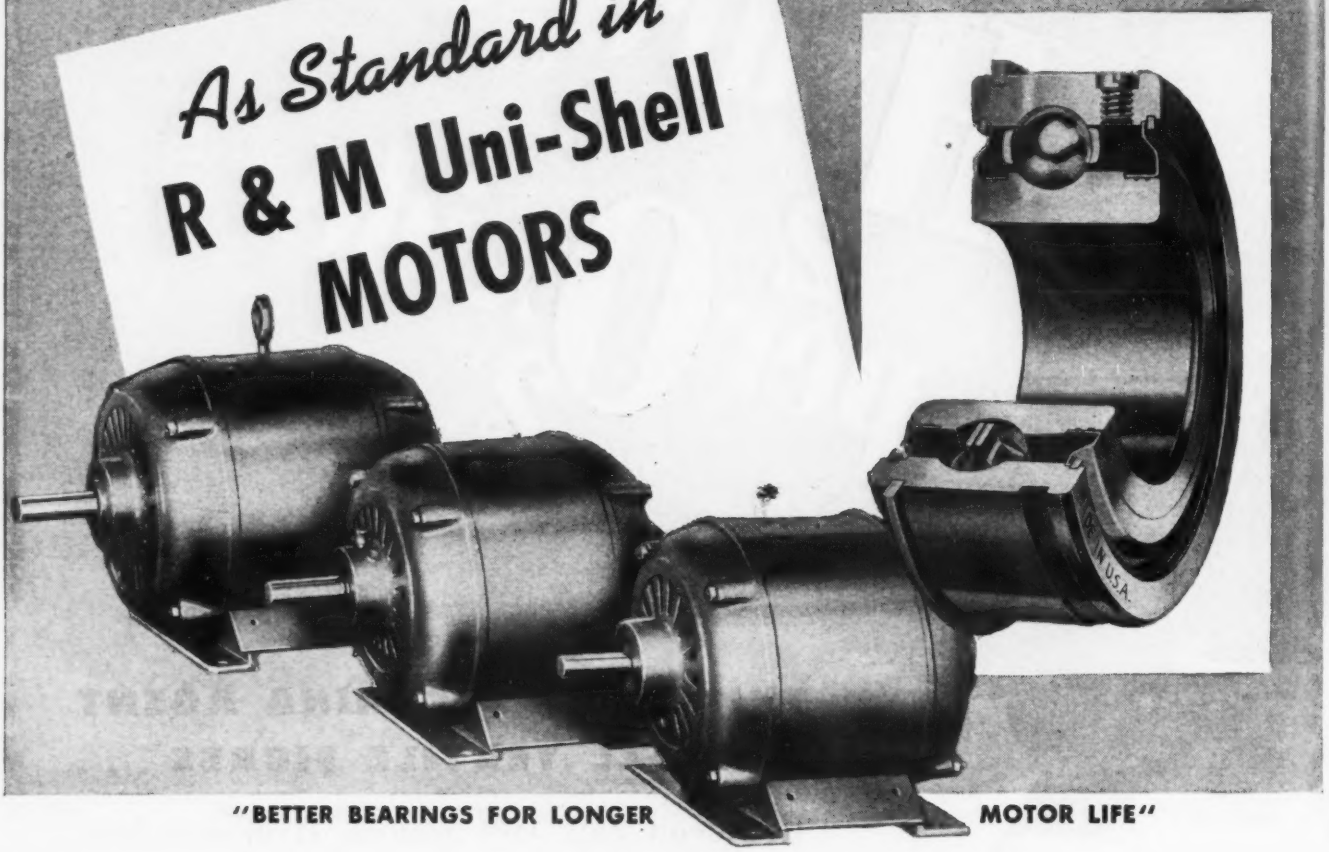
ROBBINS & MYERS FEATURE
NORMA-HOFFMANN "CARTRIDGE" BEARINGS

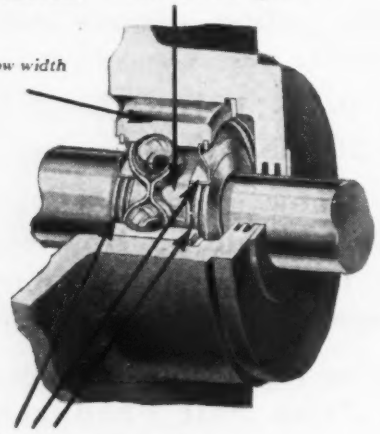
As Standard in R & M Uni-Shell MOTORS



"BETTER BEARINGS FOR LONGER MOTOR LIFE"

Extra large grease reservoir, factory-packed with "NORMA STABILITY-TESTED," water-repellent grease.

Double-row width



Grease grooves and flanged, removable metal seal, on both sides, forming a wearless labyrinth barrier against escape of lubricant and entrance of foreign matter.

From the Robbins & Myers "UNI-SHELL" MOTOR Catalog:— "A motor is as old as its bearings. Good bearings and a properly designed lubricating system are the first steps in insuring long bearing life without excessive wear.... The standard ball bearings are completely sealed, double-row width. Such bearings have an extra grease reservoir, insuring years of trouble-free operation."

From a Robbins & Myers "UNI-SHELL" MOTOR Advertisement:— "One of the two main reasons for motor deterioration is bearing wear. That is why we have gone "all out" on bearing standards, types and alignment."

From a Robbins & Myers Letter:—"The excellent record we have obtained from the thousands put in service makes us believe that such a position is justified."

Write for the "CARTRIDGE" BEARING catalog. Let our engineers work with you.

NORMA-HOFFMANN BEARINGS CORP'N, STAMFORD, CONN. . . . FOUNDED 1911

TO WIN THE WAR: WORK — FIGHT — BUY WAR SAVING BONDS!

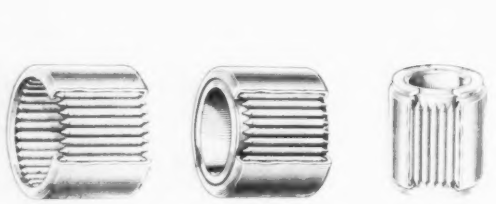
Are you doing all you can?
Let's all back the attack... Buy an extra War Bond this month

THE TORRINGTON COMPANY

TORRINGTON, CONN.

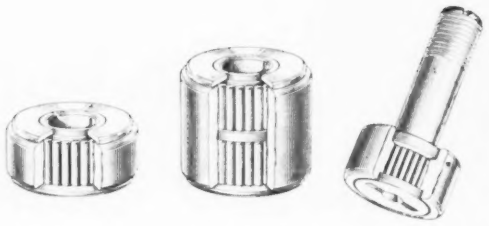
Makers of Spring Beard and Latch Needles

How Design of Needle Bearings Aids Efficient Lubrication...



Three of the DC Type Torrington Needle Bearings show how the turned-in lips of the hardened retaining shell provide a natural storage reservoir for retention of the lubricant.

In the NCS Type Needle Bearing, the construction of the heavy outer raceway also provides a similar design feature to aid in efficient lubrication.



The RC Type Needle Bearings illustrated here show how these enclosed cam-follower type bearings will hold the lubricant within the bearing and how the design helps to *exclude* dust and dirt.

THIS FEATURE PROMOTES DESIGN SIMPLIFICATION; PROLONGS SERVICE LIFE; REDUCES MAINTENANCE

An outstanding feature of Torrington Needle Bearings is the ease and efficiency with which they are lubricated... a factor contributing to many advantages which the design engineer will quickly appreciate.

For example, the cut-away sections of the Torrington Needle Bearings illustrated here clearly show how the cupped or closed retaining shells which hold the full complement of needle rollers also provide a natural reservoir for retention storage of lubricant. Thus as the rollers rotate around their own axis and travel in a circle around the shaft, they are continually supplied with an oil or grease film.

So efficient is this simple method of lubrication that many applications have been made in which the lubricant provided in the bearing on installation lasts for the life of the equipment. (The limiting factor is usually the life of the lubricant.)

However, in any given layout or application, the design and service requirements will determine the method of lubrication as well as the type of lubricant.

All Torrington Needle Bearings are lubricated before shipment to protect them in transit and in storage. A high grade mineral base slushing compound is regularly used. It has good lubricating qualities at ordinary temperatures and should be left in the bearings on installation in applications where they will be lubricated along with adjacent parts as in gear cases, transmissions and similar locations.

Where operating conditions—load, speed, and temperature—call for another type of lubricant, Torrington Needle Bearings are supplied prepacked with lubricant to customer specifications if requested.

From long experience with hundreds of different applications, Torrington's Engineering Department will gladly advise on selecting the method best suited to the requirements of your use of Needle Bearings. In this way you are assured long life and an installation which will require a minimum of maintenance or service attention.

Further information on this and other advantages of these compact, high capactity anti-friction bearings will be found in our Catalog 116. Send for your copy today.

• • •

THE TORRINGTON COMPANY

Established 1866 • Torrington, Conn. • South Bend 21, Ind.
"Makers of Needle Bearings and Needle Bearing Rollers"

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Detroit	Cleveland	Seattle
San Francisco	Chicago	Los Angeles
Toronto		London, England

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TORRINGTON
NEEDLE BEARINGS

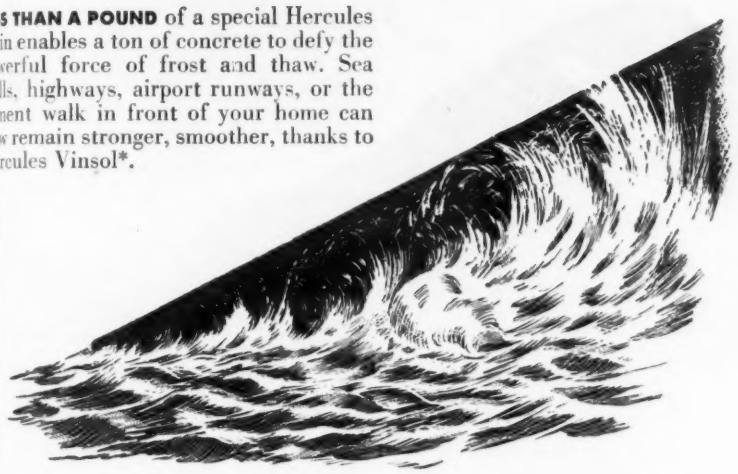
. . . A brilliant record in the field of research

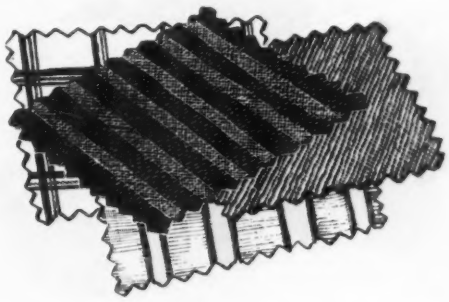
"Hercules outstanding record in the field of terpene and rosin chemistry was made possible by the teamwork of operating men and a laboratory staffed by industry-minded research chemists, physicists, and chemical engineers. They transformed wood rosin, wood turpentine, and little-known pine oil into an array of purified products, tailor-made for special purposes, that today are indispensable to scores of the nation's leading industries.

"A trip through this splendid laboratory is a thrilling experience. Here one finds superb equipment, equalling the finest of the great American and European universities."

DAVID DIETZ, *Science Editor of the Scripps-Howard Newspapers, Author, and Pulitzer Prize Winner*

LESS THAN A POUND of a special Hercules resin enables a ton of concrete to defy the powerful force of frost and thaw. Sea walls, highways, airport runways, or the cement walk in front of your home can now remain stronger, smoother, thanks to Hercules Vinsol*.

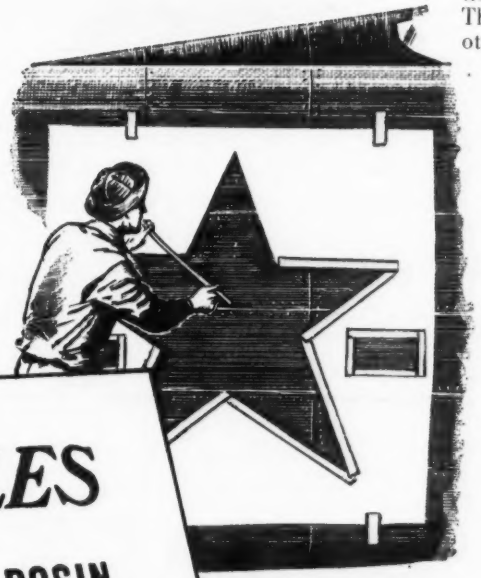


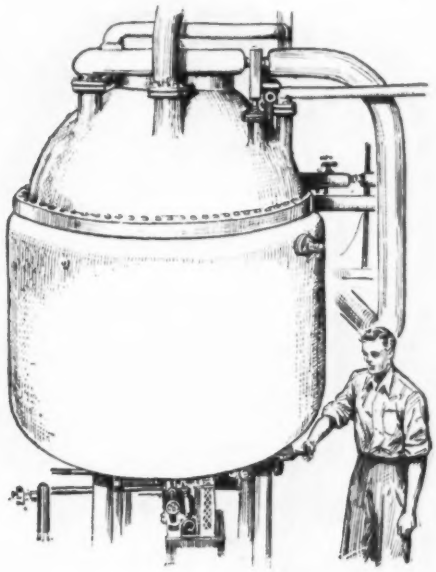


SAVING TIME AND MANPOWER for the textile industry at virtually every processing step is Hercules Yarmor* 302-W Pine Oil. In one large textile mill alone, this specially designed product cut a four-hour operation to two hours and with a cash saving!

CONSERVING CRITICAL MATERIALS is but one important contribution of Hercules Poly-pale* resin to varnish resin producers. This polymerized rosin is permitting savings of glycerin and other scarce materials as high as 30% without sacrificing quality.

LONGER LIFE FOR ADHESIVES is but one of scores of product advantages gained with Hercules Staybelite*, another rosin chemical. Its ability to retain a tacky nature indefinitely is important to modern surgical and industrial tapes, masking compositions, and many other adhesives.





HERCULES

TERPENE AND ROSIN CHEMICALS

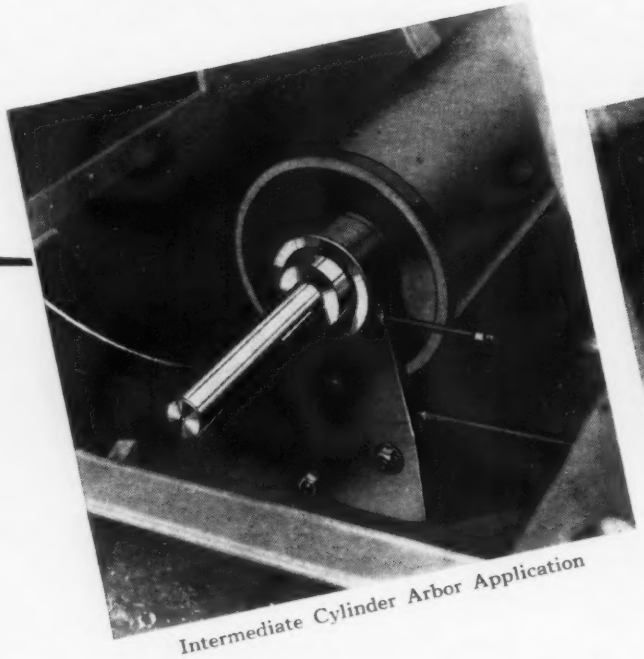
*REG. U. S. PAT. OFFICE BY THE HERCULES POWDER COMPANY

OFFER ANSWERS TO MATERIALS PROBLEMS IN MANY INDUSTRIES

NI-41

HERCULES POWDER COMPANY
INCORPORATED
994 MARKET STREET, WILMINGTON 99, DELAWARE

With Fafnirs, changeover to ball bearings is "SIMPLE AS DOFFING A FRAME"!



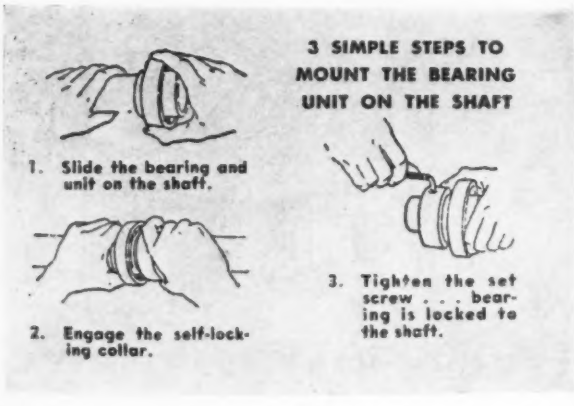
Intermediate Cylinder Arbor Application

Gear End Application

Intermediate Cylinder Arbor Unit

99% of applications of Fafnir Ball Bearing units to cylinders of spinning and twister frames require no machine alterations. They are accommodated on the same cross girts and bolt holes, and the operation of slipping the wide inner ring bearing, with its exclusive Self-Locking Collar, on the shaft is as "simple as doffing a frame"!

With Fafnir Ball Bearing units, no repeated adjustments are needed and lubrication is required only four times a year – a real saving in maintenance and lubrication costs. Mill performance tests have shown a power saving of ¾ to 1 H.P. per frame in addition to safe, continuous production. The Fafnir Bearing Company, Textile Division, New Britain, Conn. Branch Offices: Atlanta – Birmingham – Boston – Charlotte – Dallas.


3 SIMPLE STEPS TO MOUNT THE BEARING UNIT ON THE SHAFT
1. Slide the bearing and unit on the shaft.
2. Engage the self-locking collar.
3. Tighten the set screw . . . bearing is locked to the shaft.

FAFNIR
BALL BEARINGS

Ironing out the wrinkles in the chemicals supply situation continues to be a difficult job for the processor of civilian goods.

Ways-and-means, however, to smooth out many such production problems are available through the use of alternate non-priority materials. What these materials are...how they can best be utilized ...are part of the wartime information service that Cyanamid has undertaken with civilian goods industries specifically in mind.

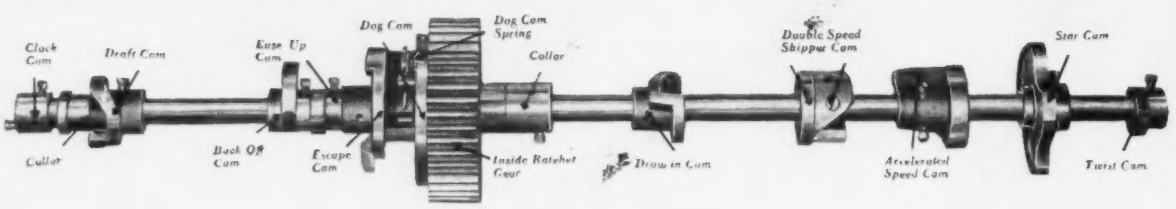
Whatever your present difficulties may be growing out of the chemical shortage situation... consult with Cyanamid. Here we are prepared to work with you in the solution of your problems making recommendations that may not only "stop-gap" current needs but which may serve to open new opportunities for postwar processing developments.

AMERICAN CYANAMID
& CHEMICAL CORPORATION
(A Unit of American Cyanamid Company)
30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

MANUFACTURERS OF
SULPHONATED OILS • PENETRANTS • FINISHES • SOFTENERS
SIZING COMPOUNDS • DECERESOL* WETTING AGENTS
AND OTHER SPECIALTIES FOR THE TEXTILE INDUSTRY
*Reg. U. S. Pat

JOHNSON & BASSETT MULES

The Epitome of Progress in Wool Spinning



THE CAM SHAFT
A DISTINCTIVE J & B FEATURE

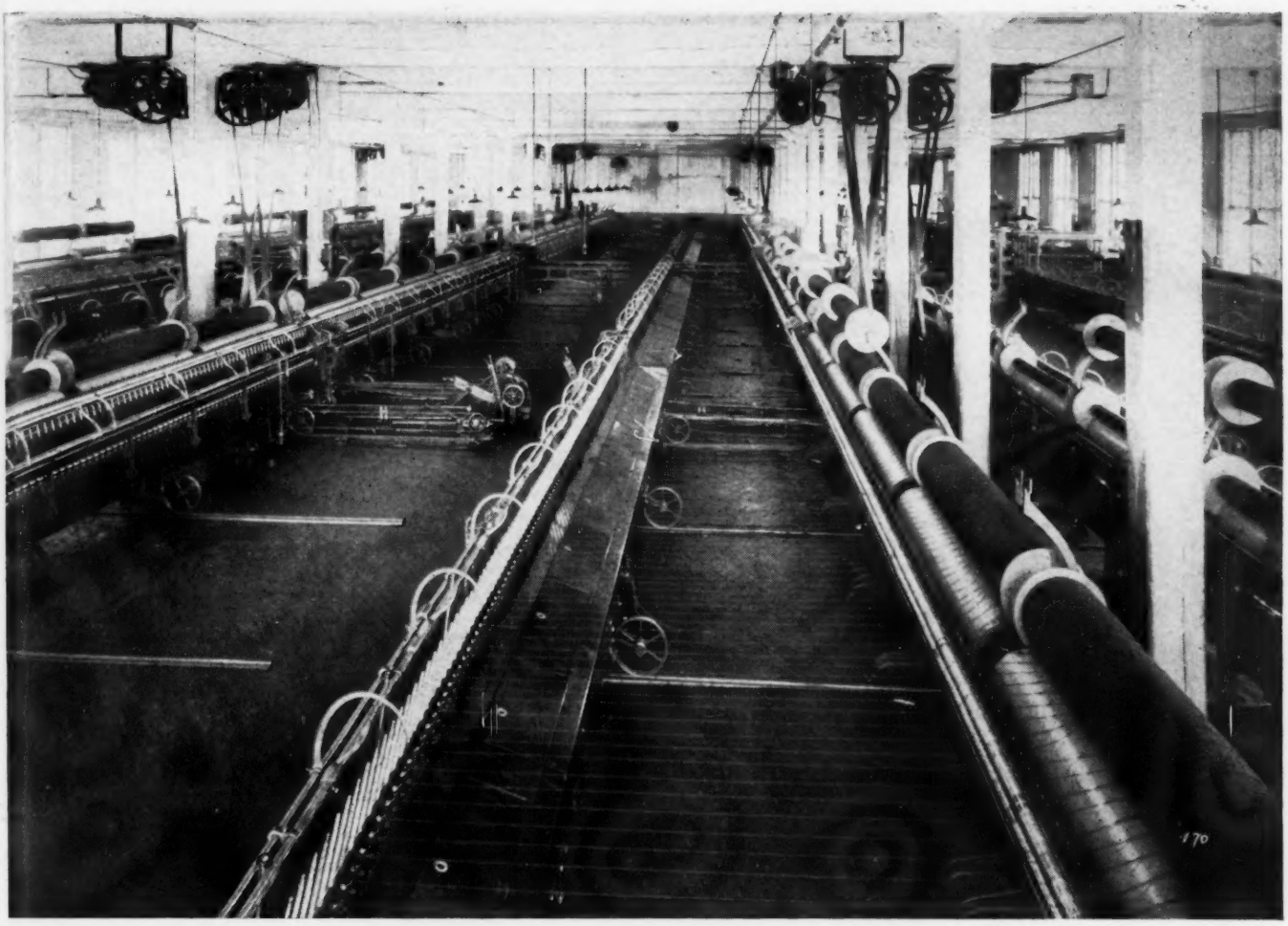
An extremely important feature of the Head Mechanism, which distinguishes the J & B Mule from all other makes, is the Cam Shaft. This device governs the great number of changes that are brought into play on the machine. It is positive in its operation, easy running, accurate, and prevents the various motions from conflicting or engaging at the wrong time.

Each cam is held in position by a key, in addition to having a set screw which goes into a hole in the shaft, thus making it impossible to put the cam in the wrong position. Therefore, if for any reason the cam shaft is removed, there will be no trouble in putting it back in place.

As a matter of fact, however, it is seldom indeed that this part has to be removed. J & B Mules frequently run for 25 years without disturbing it.

JOHNSON & BASSETT, INC.

ESTABLISHED IN 1870



11 J & B GIANT PACKAGE MULES, 288 SPINDLES EACH

Read What They Did For ATLANTA WOOLEN MILLS, Atlanta, Ga.

1. Total ends on tape condensers increased from 84 to 96—a gain of nearly 15% in card production.
2. Eleven J & B GIANT Package Mules of 288 spindles each replaced 14 old mules of 399 spindles each, reducing operatives from 29 to 23 without loss in total production and effecting a gain in production per man-hour of 26%.
3. Number of operatives on warp winders reduced from 14 at 40 hours per week to 5 at 40 hours per week,—a saving in labor of about 64%.
4. Also saving in labor of 10% in winding of filling.

Ask us for 12 reasons why J & B Mules are superior to frames for spinning wool yarns.

Worcester, Mass., U.S.A.

"Let's See—Where Did We Put That Jones Shipment?"

Poor Witherspoon! Finding a needle in a haystack is easy, compared with *his* job!

With the proper records, he'd locate that part in jig time. For, in any plant—or business—records help management keep tab on every order, every item, in every stage of its progress.

That's why thousands of businesses, in these days of higher wages and scarce help, use Uarco records—tool orders, tracer forms, production and material requisitions, work orders, inspection reports—to keep the work moving in an orderly, routinized way.

Uarco has developed ways to make every business operation faster, more efficient, more accurate, through the use of better records, whether you use handwritten (autographic register) records or continuous typewritten forms.

It may be that you have a special record problem. Uarco representatives will gladly consult with you in order to devise new and better time-saving forms. Put Uarco's years of experience to work for you in achieving new and important economies.

UNITED AUTOGRAPHIC REGISTER COMPANY
Chicago, Cleveland, Oakland • *Offices in All Principal Cities*

AVAILABLE ON REQUEST . . . Handsome full-color 10" x 10" reproduction of this dramatic painting of the "Card Gang" by Lt. Commander Anton Otto Fischer, the internationally famous marine painter. No advertising matter.

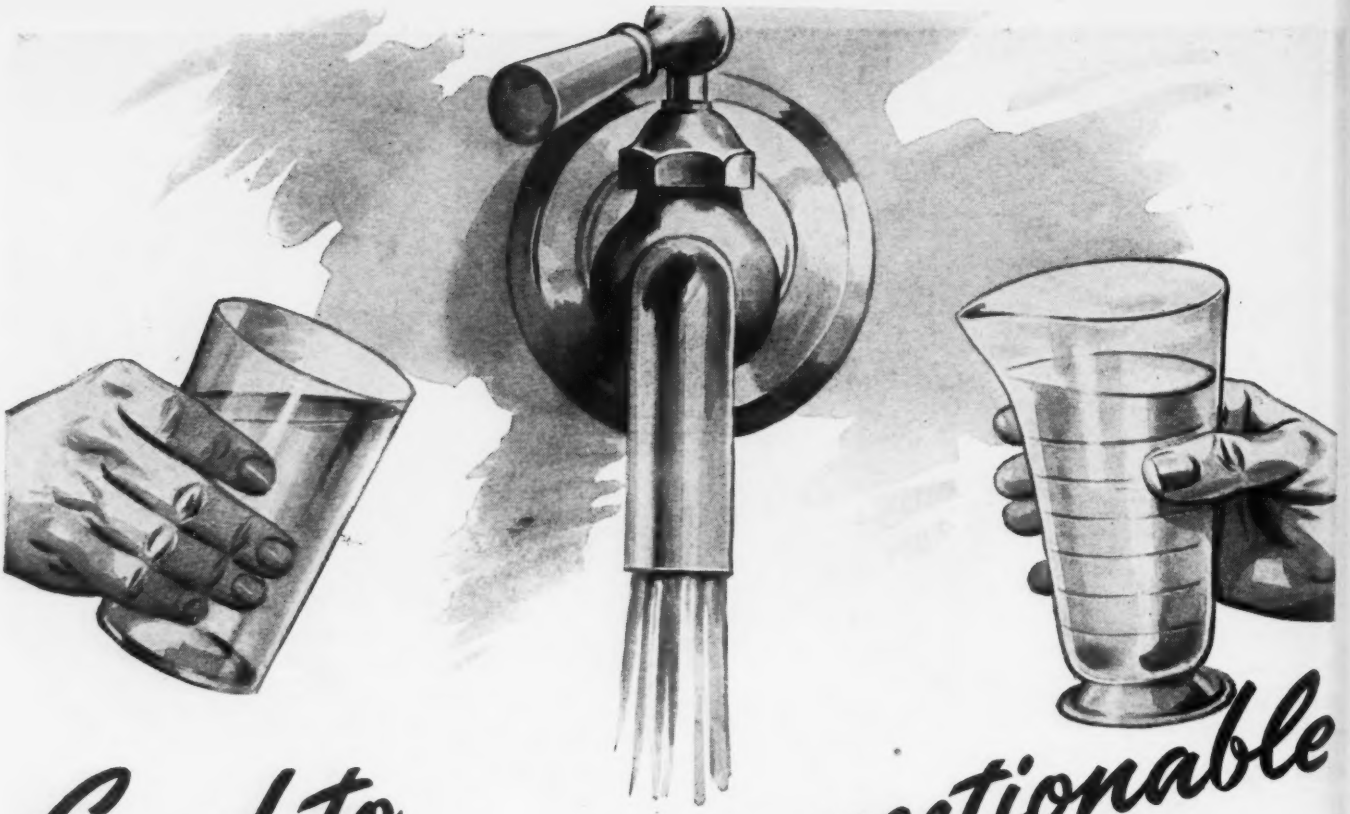
The Card Gang . . . Scourge of the U-boats

A squat baby flat top with an unarmored hull . . . three over-age destroyers, class of 1917 . . . that's the famous "Card Gang" that helped clear the U-boats from the North Atlantic last year. Certainly not a formidable looking unit, this . . . but what it lacked in looks it made up in skill and daring . . . when it went into action it hit the enemy with everything but the anchor!

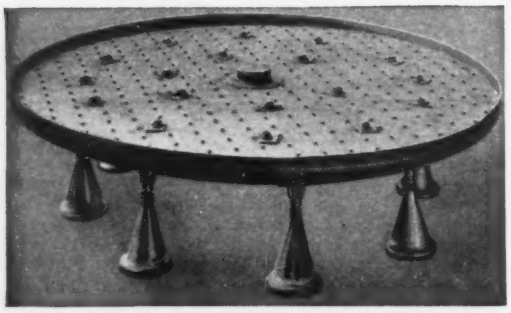
Strafing and bombing the Nazi-underseas craft the Card's aircraft squadrons, aided by the destroyers, earned a Presidential Unit Citation for destroying more submarines than any other team in Naval history. In one three-day battle this Task Unit sank or probably sank six submarines; damaged two others.

The "Card Gang" was in plenty of tight spots . . . lost one escorting destroyer in a terrific encounter with a U-boat pack during which a giant Nazi-undersea maurauder was rammed and attacked with bombs, depth charges, machine gun bursts, shell fire, and even shotguns and pistols before it was sunk. But the "Card Gang" won . . . saved all but 27 of the destroyer's crew. Men and women of the Star Electric Motor Company take a special interest in the continued exploits of the Card for three large motor generators of our manufacture are part of its equipment.

STAR ELECTRIC MOTOR COMPANY, Bloomfield, N. J.



Good to drink . . . but questionable for process use



The Graver Underdrain System—a highly important feature of the Graver Zeolite Water Softener—consists of a steel plate, equal in area to the Zeolite bed; with specially designed strainer nozzles set in on 6″ centers, insuring uniform distribution to and collection from the entire bed. No grout fill is required and there are no hidden pockets to collect stagnant water and bacteria.

Hard water may be satisfactory, or even desirable for drinking purposes. But when it comes to process use . . . that's another story. This hardness must often be either reduced or entirely eliminated if satisfactory results are expected.

Graver Zeolite Water Softeners are providing this accurate and uniform conditioning or process water in many of the country's leading textile industries. They can be designed to deliver a water of zero hardness (as determined by standard soap tests) or whatever degree of hardness may be desired for your particular process. Where required, they can be designed to entirely remove all dissolved solids, delivering a water equivalent to distilled water.

In developing the Zeolite Water Softener to its present high degree of efficiency, Graver has incorporated numerous features which make for ease of operation, accurate control, and maximum economy. These features are illustrated and described in detail in our new bulletin, No. 315, which we will gladly send without obligation. *Write for this bulletin—today.*

GRAVER

WATER CONDITIONING EQUIPMENT

Process Equipment Division of

GRAVER TANK & MFG. CO., INC.

4809-67 Tod Ave., East Chicago, Ind.

NEW YORK CATASAUQUA, PA. CHICAGO TULSA

Graver designs, builds and installs all types of water conditioning equipment including Hot Process Water Softeners—Zeolite Water Softeners—Demineralizing Plants—Water Filters—Iron Removal Filters—Taste and Odor Removal Filters—Reactivators—Chemical Mixing Tanks—Chemical Proportioners.

"Gems" for Flattery . . . Every woman knows the flattering loveliness of clear, even-textured full-fashioned stockings. Every hosiery manufacturer knows that good needles are the best safeguard for better fabrics and bigger profits in full-fashioned knitting. Keep your Knitting Machines young and effective with TMW Needles . . . *And remember: Regular Reneedling Pays! Let us put your needle bars in shape for faster, more accurate, more profitable knitting.*

TEXTILE MACHINE WORKS • READING, PA.

"A wise man never refuses anything to necessity."
SYRUS

Until the Victory is Won! . . . The men and experience back of Reading Full-Fashioned Knitting Machines are enlisted for the duration. We *cannot* give you new machines — but we *will* do the next best thing: Our engineers will do their utmost to help you keep your present equipment at highest efficiency. *Let us tell you about our complete reconditioning service and what it means in terms of better fabrics and bigger profits.*

TEXTILE MACHINE WORKS • READING, PA.

THE WAR DECORATIONS OF TEXTILE MACHINE WORKS

Bur. of Ord. Flag and Navy "E"
July 25, 1941

One Star All-Navy "E" Burgee
January 25, 1942

Two Star Army-Navy "E"
July 25, 1942

Three Star Army-Navy "E"
January 25, 1943

Four Star Army-Navy "E"
January 11, 1944

. . . when you use Shell Textilis Oil 24K in your knitting operations

IT'S surprising how shiny and free from rust and gum your knitting needles will be when they're lubricated by Shell Textilis Oil 24K. In fact, its rust-preventive qualities are so effective that a leading manufacturer of knitting machine needles uses Shell Textilis Oil 24K exclusively, for protection in packing.

You'll also find Shell Textilis Oil 24K is easily washed out in the finishing process, which reduces staining losses to the absolute minimum.

Shell Textilis Oil 24K is but one of a complete line of lubricants designed specifically for each type of textile machine lubrication.

It will pay you to discuss your textile lubrication problems with a Shell Textile Lubrication Specialist.

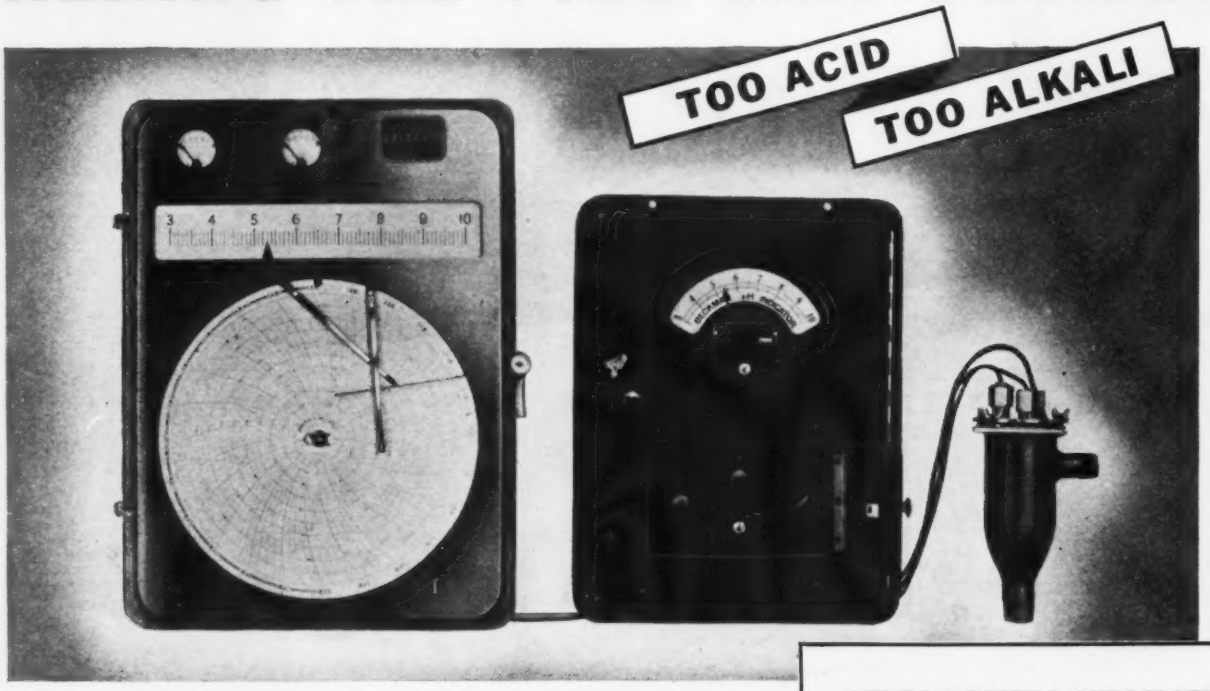
SHELL OIL COMPANY, INC.

SHELL

TEXTILIS OILS

STEADFAST HELP IN

WALKING THE FINE LINE BETWEEN



HOW TO BE SURE ABOUT... pH...

Turn the problem over to a Bristol Continuous pH Controller and let *it*, automatically, handle such responsibilities as

- **neutralizing after carbonizing;**
- **condition of water for dye and bleach house;**
- **neutralizing dye house waste;**
- **testing condensate from heating coils and automatically dumping it if acid.**

Periodic sampling for test will no longer be necessary. The Instrument, informed of conditions, automatically adjusts for the correct pH value.

The Bristol Recording pH Controller, which operates Synchro-Valves, is designed around Bristol's exclusive *Free-Vane* principle, the most accurate of all air-operated designs. The Free-Vane is completely frictionless — it floats between two opposing jets of air — so there is no retarding action on the measuring element. An absolute true record of actual results is obtained.

Write for Bulletin 536 on pH Control.

THE BRISTOL COMPANY, 157 Bristol Road
WATERBURY 91, CONN.

The Bristol Co. of Canada, Ltd.
Toronto, Ontario

Bristol's Instrument Co., Ltd.
London, N.W. 10, England

OTHER BRISTOL AUTOMATIC CONTROLLERS and RECORDERS FOR TEXTILE PURPOSES

1. Recording Temperature Controllers for Bleach Kiers.
2. Automatic Control for Dye Jigs, Dye Machines, and Dye Kettles.
3. Humidity Recorders for Carding Combing, Drawing, Spinning, and Weaving.
4. Automatic Temperature Controllers for Mercerizers.
5. Power Plant Instruments.
6. Tachometers for Yardage Through Tentering Dryer.
7. Automatic Controllers for Back Washers and Back Wash Dryers.
8. Flow Meters for Measuring Steam to Each Department.
9. Automatic Control for Washing and Bleaching Equipment.
10. Slasher Control Systems.

Engineers Process Control for Better Products and Profits

AUTOMATIC CONTROLLING AND RECORDING INSTRUMENTS

FLAME RETARDANT

WATER REPELLENT

WEATHER RESISTANT

MILDEW PROOF

GET THIS STORY ON

clorafin*

Finished Fabrics!

PROBLEM . . . To finish military canvas duck for tents and tarpaulins. Fabric must withstand conditions of active service everywhere in desert, tropics, snowfields. It *must* be highly resistant to flame, water, mildew, and weather.

SOLUTION . . . To fill this demand Hercules turned to a product which does these *four* jobs in *one* operation—Clorafin. Finishes made with this chlorinated paraffin have met all the exacting Army specification tests, and today are giving excellent service with our fighting men wherever they go.

SUGGESTION . . . The success of Hercules Clorafin finishes in war points the way for uses in peacetime products. Lawn furniture, camping gear, awnings, farm machinery covers, carpets —the list is long indeed!

FREE NEW BOOKLET ON CLORAFIN

A new 8-page booklet not only offers helpful technical information, but lists many postwar possibilities of interest to you. Send in this coupon today for your free copy.

*Reg. U. S. Pat. Off.

CELLULOSE PRODUCTS DEPARTMENT
HERCULES POWDER COMPANY
INCORPORATED
994 MARKET STREET, WILMINGTON 99, DELAWARE
Please send free 8-page Clorafin booklet to:

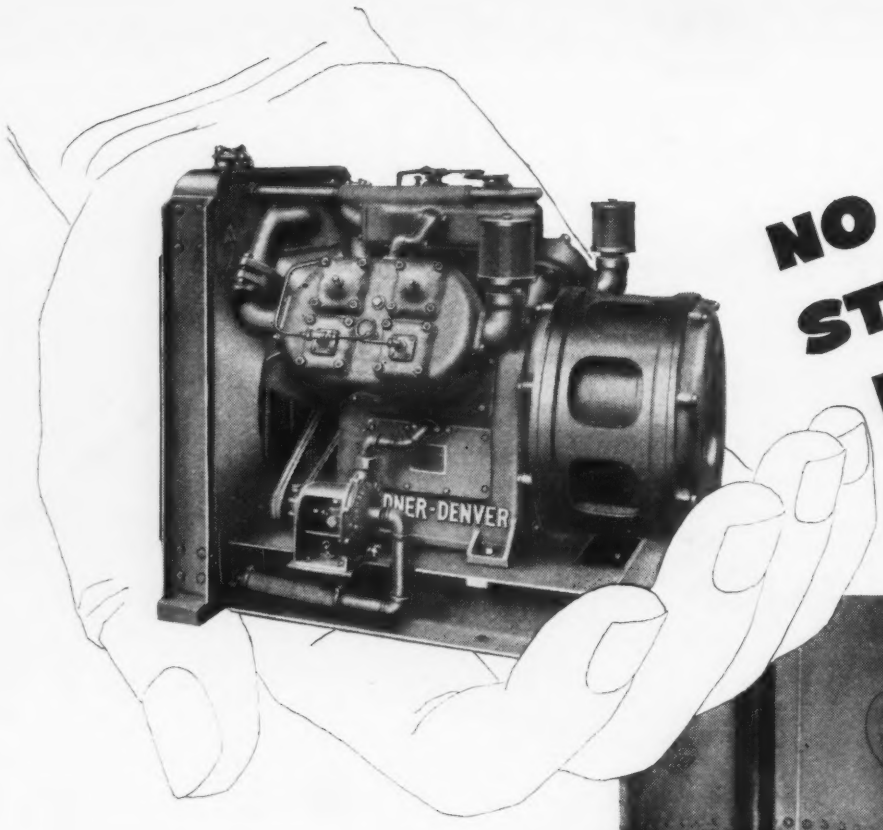
Name.....

Company.....

Address.....

CF-43

HERCULES



NO SPACE STRETCHER NEEDED!

You don't need a "space stretcher" when you install a Gardner-Denver "WB" Two-Stage Vertical Air Compressor in your plant.

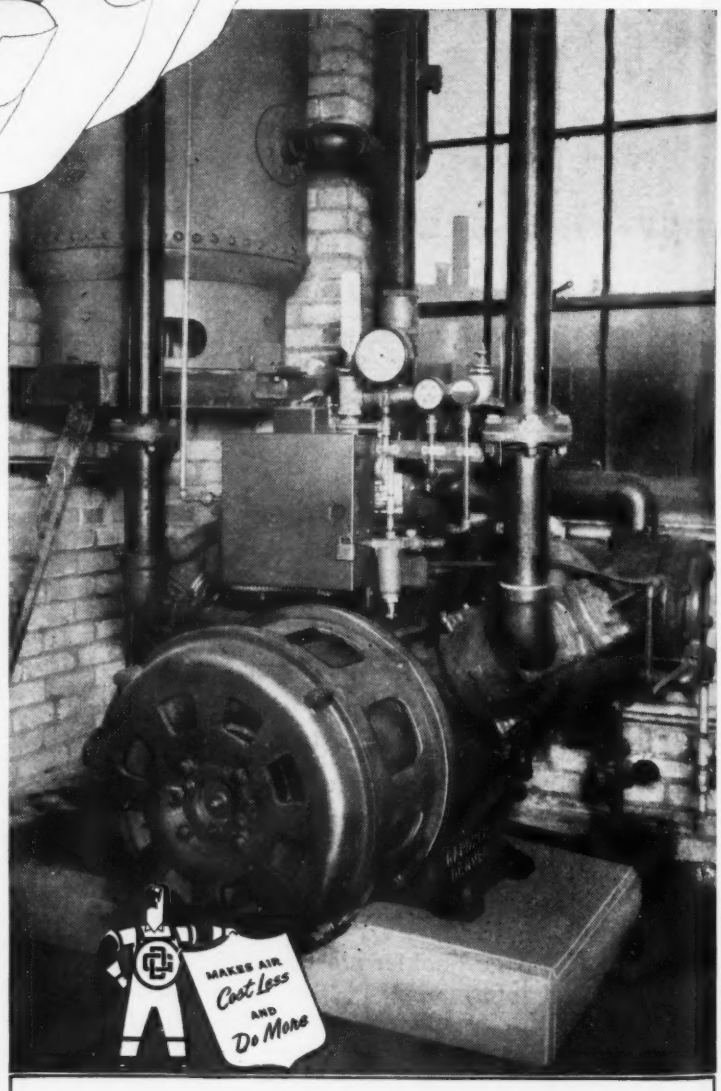
For these Gardner-Denver Compressors are designed to combine unusual compactness with air output comparable to that of large Two-Stage Horizontal Compressors.

A distinctive design feature is the use of two small-diameter, low-pressure cylinders in conjunction with each high-pressure cylinder . . . instead of a single large one . . . permitting the use of small, lightweight pistons in all cylinders.

Thus, the inertia load is reduced, making possible considerable reduction in compressor size.

Note These Design Advantages

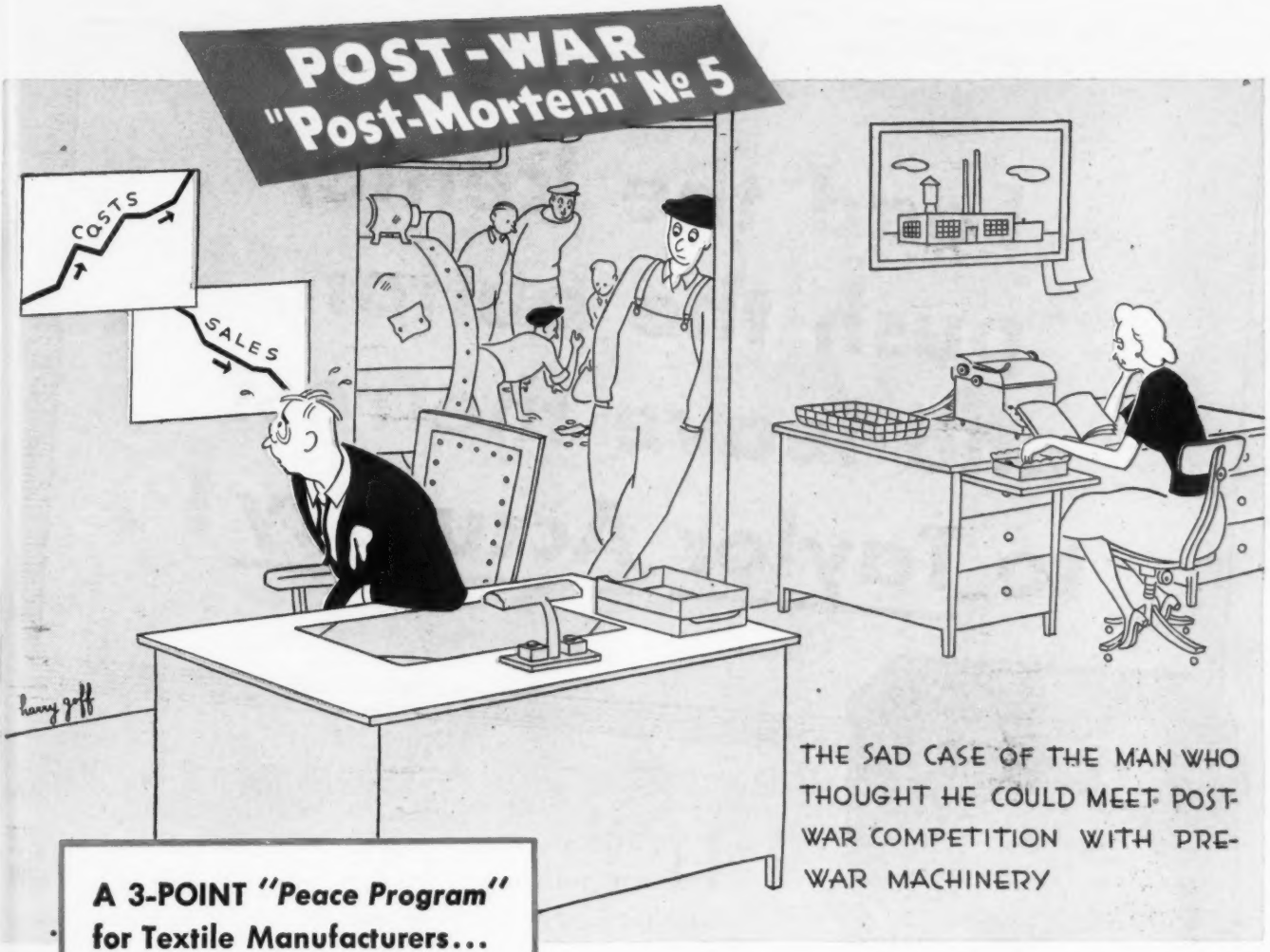
1. **Fully water-cooled cylinders for lubricating oil economy and lower discharge temperatures. A self-contained unit as far as cooling water is concerned . . . no outside water piping required.**
2. **Extra strength and hardness assured by GarDurloy—the special high-strength alloy iron.**
3. **Drop-forged crankshafts mounted on Timken roller main bearings.**
4. **Capacities ranging from 142 to 445 cubic feet displacement per minute.**



Since 1859

GARDNER-DENVER

GARDNER-DENVER COMPANY, QUINCY, ILLINOIS—Atlanta, Ga.; Birmingham, Ala., Boston, Mass.; Hazleton, Pa.; Knoxville, Tenn.; Washington, D. C.; New York, N. Y.; Philadelphia, Penna.; Pittsburgh, Penna.


POST-WAR
"Post-Mortem" No. 5
COSTS
SALES
harry goff
THE SAD CASE OF THE MAN WHO THOUGHT HE COULD MEET POST-WAR COMPETITION WITH PRE-WAR MACHINERY

A 3-POINT *"Peace Program"* for Textile Manufacturers...

1 Make your post-war plans NOW

don't let peace catch you without definite plans for products, markets, sales and production.

2 Decide on new equipment needs NOW

don't wait until the war is over before making a thorough survey of your production equipment and deciding what machines must be replaced.

3 Order your new equipment NOW

don't risk serious delay in securing necessary new equipment for post-war production. Metals and other basic materials will continue to be scarce for a long time after the war ends.

If you are going to need new dyeing and finishing equipment after the war, we earnestly recommend that you place your order with us now. Our "Post-War Purchase Plan" assures you prompt delivery when war restrictions are lifted. Write now for complete details of this plan.

Since America entered the war, textile machinery has been driven harder and worn out faster than ever before . . . yet scarcely a single new machine has been built. As a result, a large percentage of all machines in the textile industry should be replaced. In spite of this fact, there will be some textile manufacturers who fail to do anything about replacing worn or obsolete machines until after the war is over.

These men either believe they will be able to get replacements promptly as soon as the war ends . . . or they believe they will be able to get along with their old equipment for a considerable time after the war.

Both of these beliefs hold hope for nothing but grief. Delay in placing orders for new equipment will result in long waits for delivery after the war. And the manufacturers who are forced to operate with pre-war equipment will find themselves unable to compete successfully with those who have obtained new equipment.

What's the answer? Take action *NOW!* Determine what machines in your plant should be replaced . . . *then order those machines right away.* Our "Post-War Purchase Plan" is designed to help those forward-looking manufacturers who want new dyeing and finishing machines just as soon as possible. Write for complete details.

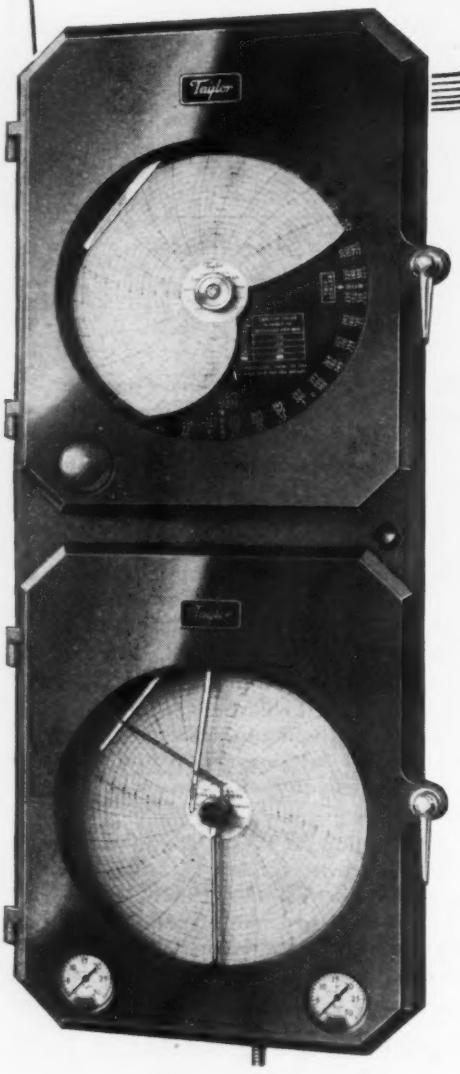
SMITH, DRUM & COMPANY
Allegheny Avenue at 5th Street, Philadelphia 33, Pa.

SMITH-DRUM TEXTILE MACHINES

for hosiery dyeing, skein dyeing, package dyeing, beam dyeing, piece goods dyeing, package drying, skein mercerizing, warp mercerizing, hosiery inspection.

RECIPE FOR SIZE COOKING

Load the kettle, push the button, and leave the rest to Taylor Accuracy!



HERE'S a sure-fire recipe for the difficult and important job of size cooking. Taylor Fulscope Time Schedule Controller performs the whole operation *automatically.*

You can forget all about boiling over and improperly cooked size. Just load the kettle, press the button and the Taylor Time Schedule Controller does the whole job with automatic control of time and temperature. What's more, it will reproduce the same cooking schedule time after time. It's a highly versatile instrument with many auxiliary functions and the control and cam and trip mechanisms are readily accessible.

Call your Taylor Field Engineer for the full story. Or write Taylor Instrument Companies, Rochester, N. Y. or Toronto, Canada. *Instruments for indicating, recording, and controlling temperature, pressure, humidity, flow and liquid level.*

P.S. *We can now promise normal delivery schedules once more!*

Taylor Instruments
MEAN **ACCURACY FIRST**

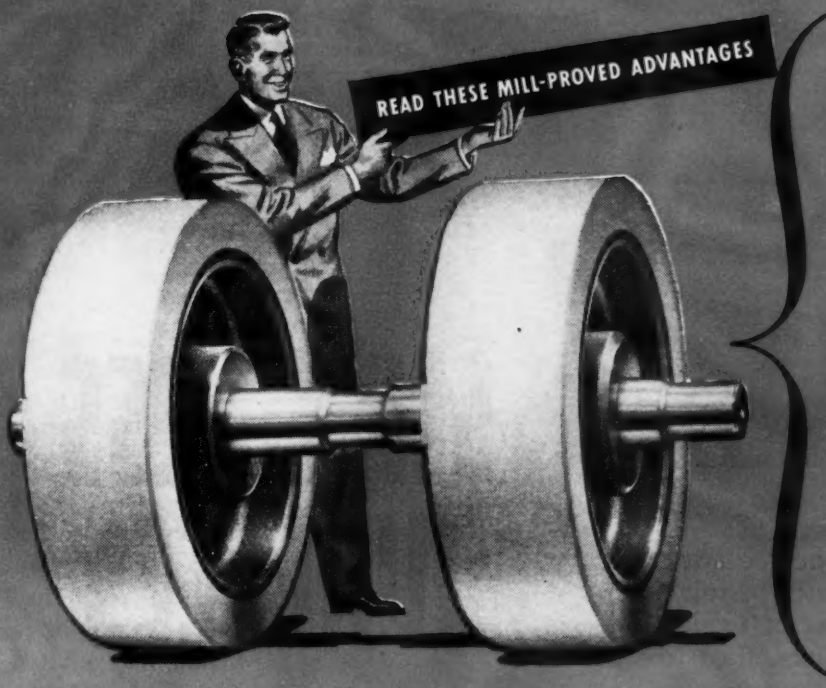
ARMY E NAVY

IN HOME AND INDUSTRY

KEEP ON BUYING U. S. WAR BONDS AND STAMPS

Take Advantage of the

TREMENDOUS SAVINGS WITH DAYCO WORSTED COTS



1. Great savings in labor and time applying cots to arbors.
2. Increased cot life—outlast others by 12 times or more.
3. Greatly reduce power consumption on spinning and drawing frames.
4. Reduce matching-up through more uniform yarn production.
5. Reduce replacements of rolls on frames to an absolute minimum.
6. Eliminate waste of time and labor in removing and re-setting the pressure on rolls after shutdowns.
7. Run any kind of number and/or mixtures of wool, rayon and mohair with equal efficiency and minimum of lint.
8. Simplify schedules and give more and better production of the wanted numbers.

Last 12 Times Longer Than Others and Operate with Greater Efficiency

There is virtually no end to the service life of DAYCO Worsted Cots — they last over 12 times longer and how much longer only time will tell as all original installations of Dayco Cots are still running today after years of trouble-free service. Daycos will not groove and are impervious to agencies which lessen the life and efficiency of other cots.

Read carefully the eight mill-proved production advantages of DAYCO Worsted Cots—and resolve to let them help you with *your* wartime output of *more* uniform yarn.

THE DAYTON RUBBER MFG. CO.
DAYTON 1, OHIO - WAYNESVILLE, N. C.

Famous DAYCO Synthetic Rubber Products since 1934

MAIN SALES OFFICE:
Woodside Building, Greenville, S. C.

Let's All Back the Attack With War Bonds

Roll Coverings by Dayton Rubber
REG. TRADE MARK THE DAYTON RUBBER MFG. CO.

SLIVERLESS SURFACES

THAT WON'T SNAG FABRICS.

MOST mills which produce delicate fabrics have to watch their step when selecting the surfaces of table-tops, platforms, benches and trucks, that are to come in contact with their product.

For if the surface slivers it is easy for it to injure fabrics turning perfectly good "firsts" into "seconds" and costing a lot of money.

It may be good news to you that in Formica laminated plastic sheets a surface is available—or was before the war—that will not sliver and snag.

It is also non-porous and will not stain. Dye can be easily flushed off it with water, and it is very easy to keep clean with soap and water. It isn't injured if you have to use solvents like alcohol or gasoline to clean it.

"The Formica Story" is a moving picture in color showing the qualities of Formica, how made, how used. Available for meetings or engineering and production men.

ARMY E NAVY

FORMICA

THE FORMICA INSULATION CO., 4668 SPRING GROVE AVE., CINCINNATI 32, OHIO

Disposal of Government War *Plants and* Equipment

In the last four years, the Federal Government has spent over fifteen billion dollars on war plants—two-and-one-half times as much as was spent by private investors.

Of this fifteen-billion-dollar government investment, about one-third has gone into facilities for the manufacture of aircraft and for ship construction and repair; another third has gone into plants for production of combat ordnance; and the remaining third has gone into a variety of facilities for making synthetic rubber, metal products, machinery, and miscellaneous equipment.

Most of these plants are in industries that are expanded far beyond peacetime requirements. Furthermore, their convertibility to other civilian uses will, in many cases, be complicated by their specialized equipment and layout, by their tremendous size, and by their uneconomic location. At the moment, it looks as if roughly one-third of the government-owned plants and equipment can be converted fairly readily to peacetime operation, and will, therefore, be easily disposable to private enterprise.

The discovery of unsuspected uses for war plants and equipment may well raise the disposable proportion to one-half or more. The government, at the end of the war, may own about one-eighth of the commercially-usable industrial capacity of the country. It will be by far the largest owner of machine tools; it will own enormous aluminum capacity, magnesium capacity, many miles of pipe lines, and more ships than the entire private shipping industry.

What the government does with its war plants will have a profound effect on the free enterprise system and on all workers, employers, investors, and consumers who have a part in that system. If this problem is handled badly, we may find ourselves enmeshed in a trend toward monopoly and government operation of industry. If the problem is handled well, we shall have taken a big step toward freedom of action in a competitive society, toward full opportunities for business enterprise, toward well-paid productive jobs for workers, and toward a higher standard of living for us all.

Recently, three important events have signalled encouragement. They are the report of Senator George's Committee, the Baruch report, and the report of Senator Truman's Committee. These reports are noteworthy for their competent sizing up of a complex problem, for their recognition of the major responsibility of government in making a successful transition to peace, for their insistence on wise policy and good administration, and for their genuine concern that our productive powers be given full opportunity in a free private enterprise system. These reports agree on basic principles and many specific lines of action. There are, however, important areas of policy formation, organization, and procedure—especially in regard to plant disposal—which remain to be blue-printed.

In formulating the policies and practices to be followed in dealing with government war plants, our major goal must, of course, be a high level of production and employment in private business after the war.

Government operation in competition with private employers and privately-employed workers will not be desirable because it will make investment unattractive to private capital and will limit opportunities for private employment. On the other hand, sales to private buyers which result in increasing the concentration of industry will also be undesirable. We must use this opportunity to strengthen the competitive enterprise system and to move away from, not toward, the concentration of economic power in either public or private agencies.

To accomplish these objectives, a program of action such as follows will be necessary:

1. An adequate reconversion organization will be needed in the government, but its powers and responsibilities should carefully be defined by Congress. Fortunately, an able Administrator of Surplus War Property already has been appointed. It will be essential for him to work in closest cooperation with Congress and with the Armed Forces and other executive agencies. The Office of War Mobilization, and ultimately the President, must be responsible for seeing that the Surplus War Property Administration is not sidetracked by the operating agencies and is not dominated by their sheer size. Funds must be supplied generously to the Surplus War Property Administrator, so that he can set up an organization adequate to cope with this huge and complex job. Business, too, must be generous in loaning top-flight executives for postwar government service.

2. One of the first acts of the Surplus War Property Administration will have to be to assemble a complete inventory of government war plants and equipment, to make possible the planning and control of the disposal process, and to form the basis of catalogues of property available for sale.

3. Cooperation between the executive and legislative branches of the government will be needed to develop at least tentative plans with respect to matters of public policy which are of special importance to a successful transition to peace. Among these matters are the size of the military establishment to be maintained in time of peace, the stand-by facilities and reserves of materiél necessary for our security in case of future war, and our policy regarding import and production of synthetic rubber and other critical and strategic materials.

4. The Surplus War Property Administrator should

obtain from the Armed Forces, acting under congressional directives, specification of those plants which are needed to supply our peacetime Army and Navy and to provide the essential reserve capacity in case of war.

5. The Surplus War Property Administrator should select certain war plants as depots in which to store the huge surpluses of inventories and equipment which will have to be removed from private and government-owned factories in order to make possible their conversion to civilian use.

6. Those plants which are not desired by the Army or the Navy, which are not needed for storage, and which clearly will be unsuitable for peacetime utilization should be scheduled for dismantling and disposal piecemeal.

7. The two or three billion dollars' worth of government facilities intermingled with private plant should receive attention with a view to early sale, temporary continuance or use under lease, or early removal.

8. The various plants and pieces of equipment available for sale to private business should be classified conveniently, catalogued, and advertised to prospective buyers or lessors. Before the Surplus War Property Administrator offers, for private sale, plants and equipment not desired by the Army or the Navy, he should ascertain whether the plants or equipment are desired by other branches of the government or by public corporations such as the T.V.A.

9. Whenever property can be sold at prices approximating depreciated reproduction cost, that will be by far the best solution. Generous time-payment terms should be offered. In many cases the government may be unable to sell the property for reproduction cost less depreciation, for the simple reason that no one would think of reproducing it. The property may already be partly obsolete or, because of its size, location, or other characteristics, may only be moderately well suited for commercial use. This should not prevent the government from selling it, provided a price which fairly represents the worth of the property can be obtained. The best test of that worth is the price produced by active bidding under favorable market conditions.

10. When property cannot be sold at a fair price, temporary leases with options to buy should be employed to get the facilities into productive use. This should not, however, be done on terms which would cause unfair competition or create clearly excessive capacity in an industry. And the lease must be temporary; it must not be the means to prolong government control or ownership.

11. The government should offer the strongest possible resistance to local groups or industry groups seeking subsidies for continued operation of war properties. Subsidies will burden the Treasury and lead to inefficient use of resources. They will be justified only to maintain facilities needed for national security.

12. The plants and equipment offered for sale and lease should include sufficient quantities in small enough lots to satisfy the demands from small business. The war has tended to concentrate production in larger plants. After the war, we should seek a wider distribution of the government war facilities.

13. Insofar as possible, war buildings and equipment should be offered for sale in units which can be purchased by businesses in peacetime industries. Many of these industries have had to get along during the war without adequate replacement and expansion, and will be ready to buy if they are able to get what they want from the government. This is a particularly desirable market for surplus government property since these industries are, for the most part, not faced with the problems of excess capacity.

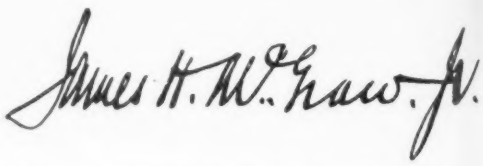
14. Property, such as machinery and other movable equipment, which is in excess of our domestic requirements or is more urgently needed by other countries, should be exported. We shall need, and can take, large supplies of raw materials in return.

15. Property which is not needed by the Armed Forces, which cannot be sold or leased on terms which would be fair to competing plants, which cannot be dismantled and distributed piecemeal, and which cannot be sold abroad, should be scrapped as soon as its non-disposability is apparent. The disposal of war plants should be completed within three to five years.

16. All negotiations for sale or disposal should be matters of open public record. As Mr. Baruch has said, the process must be conducted in a goldfish bowl. This is as much for the protection of business as for the protection of the government.

These courses of action do not include everything that must be done, but they do indicate the general lines along which our surplus war plant disposal must proceed if it is to avoid precipitating needless transition unemployment.

The gravest danger of all will be red tape, intergovernmental conflict, and inadequate administration. It would be a great misfortune for the executive and legislative branches to quarrel over details of organization when they agree on the basic principles to be followed in handling the problem. Obviously, the Surplus War Property Administration must cooperate with Congress and look to it for policy guidance. Just as obviously, the disposal problem will involve great difficulties of administration which must not be complicated by congressional interference. We shall need the best we can get in careful policy making, detailed planning, good organization, and courageous action. This is a matter of vital importance to every American. The stakes are too high to tolerate poor administration or petty politics.



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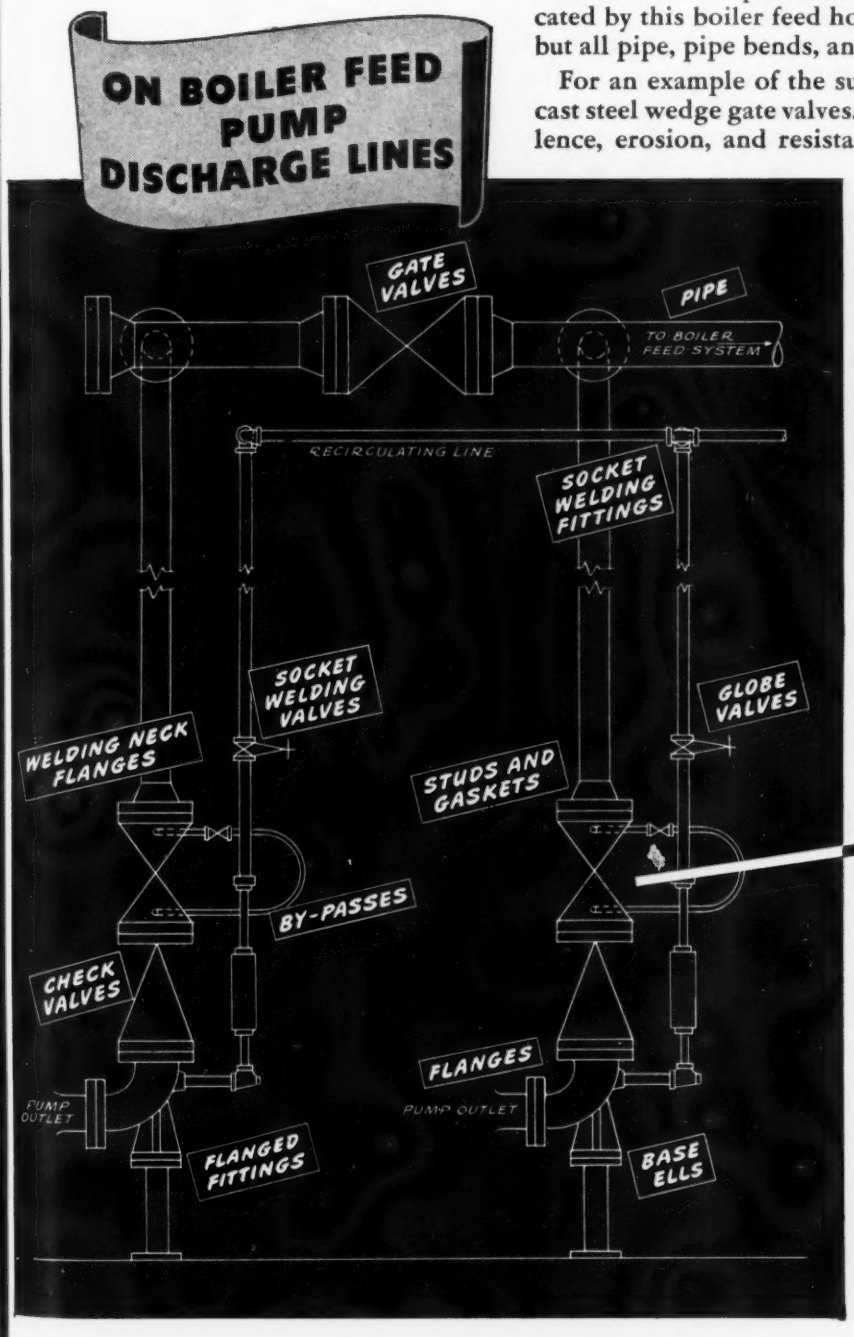

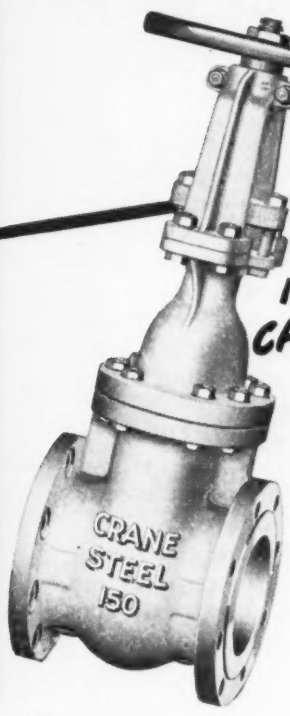

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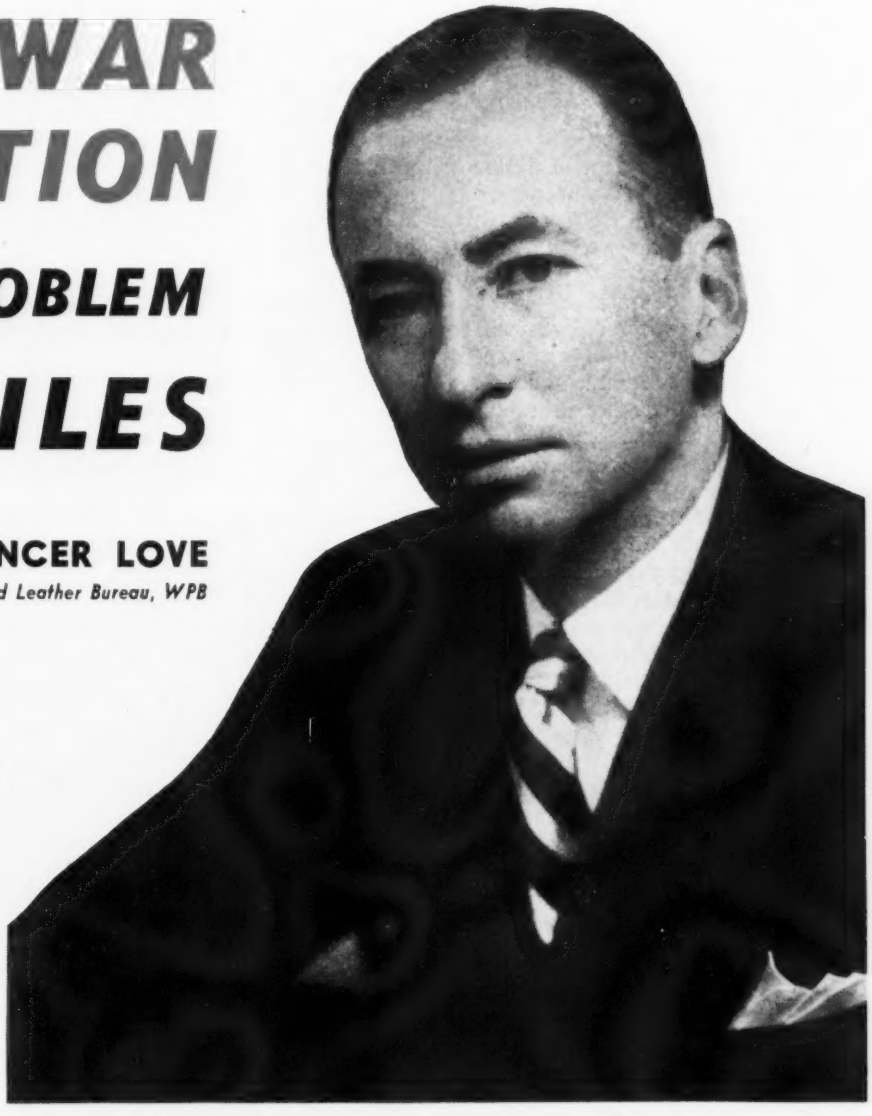
WAR PRODUCTION

THE 1944 PROBLEM IN TEXTILES



By J. SPENCER LOVE
Director—Textile, Clothing, and Leather Bureau, WPB

HIGHLIGHTS: War Effort Requires 10% More Fabric This Year Than Last —Textile Head of War Production Board Favors Voluntary Cooperation as the Democratic Way — Promises Minimum of Disruption.

SINCE THE NATURAL OBJECTIVE of the War Production Board is that of mobilization of the nation's productive capacity in support of an all-out war, the purpose of this article is to give an insight into the current problems of one of America's greatest industries—textiles—as they are related to war production.

It should be remembered that in a democracy the primary purpose is that of attainment of unified, cooperative effort without necessity of compulsion or regimentation. A democracy which must resort to force and regulation is, for one reason or another, failing to function properly. It emphasizes its major weaknesses when, to avoid abuses and attain maximum efficiency, it must resort to policing powers or intimidation. Business should recognize and be tolerant of this when it suspects a tendency toward regimentation.

COMPULSION MINIMIZED. The Textile Bureau of the WPB, recognizing these factors inherent in democratic government, has constantly sought to avoid compulsion rather than to perfect it. It has tried in its program to reduce individual inconvenience to the minimum; to disrupt normal industrial operations no more than seemed absolutely required by the exigencies of an all-out war; to use force sparingly and to seek cooperation through leading, by timely advice and encouragement rather than by coercive measures. In such a course, it is of course highly important that industry recognize this altruism and these weaknesses and strive patriotically to assist the WPB in making the whole democratic machine work effectively and smoothly in the emergency.

It must be remembered that war times are times of abnormalities. Unfolding circumstances are by their very nature unpredictable during such periods, and it is never possible to plan accurately for the various emergencies which develop often too rapidly. We may plan our own war scientifically and accurately but we cannot always foretell what the enemy is going to do.

Manpower shortages enter into the picture. Material shortages, fluctuations in the cost of living, changes in earning ability and income—these and many other upsetting elements contribute to the uncertainty of war times and render war mobilization of industry more difficult. To these domestic problems must be added the even wider variations in the fortunes of war and resultant unpredictable fluctuations of demands for various types of fabrics. The most carefully laid plans during a war period will inevitably bring inequities from time to time. It

is impossible to wage an all-out war without someone being hurt. Injuries will necessarily occur on the industrial front at home as well as on the military fronts afield. These circumstances are accepted as inevitable by the WPB, and its efforts are logically devoted to the minimizing of war injuries and the avoidance of inequities as far as is reasonably possible.

It takes, however, a lot of different kinds of people to make up a world: the selfish and the unselfish, the patriotic and the unpatriotic, the honest and the dishonest; and in a large country like the United States all types of reactions can be expected. By and large it is the perennial non-conformists, those whose moves are most completely guided by purely selfish motives, who do more to force regimentation than the regulators themselves.

PRODUCTION FALLING. These advance statements are important to a clear understanding of the present textile picture. As a whole, the textile industry has been splendid in its cooperation with the program of war production. As a result, 1942 witnessed an all-time high in textile production of 13.4 billion linear yards. This is three billion yards above the highest pre-war production of American mills in any one year. In 1943, the total was 4% less or 12.9 billion yards, but the current rate is somewhat lower.

There are now very definite indications that needs exist which in the aggregate would require 10% more fabrics in 1944 than were produced in 1943; and unless unusual steps are taken, the industry will not be able to hold on to its record production rates of 1942 and 1943. Unless the gravity of the situation is recognized, we are likely to find ourselves far short of actual textile needs and even short of productive capacity.

It is the function of the WPB to ascertain the extent of the needs and to direct industry in mobilizing to meet the emergency. In the first place, it must be recognized that an all-out war involves far more than production for military and naval use. There are dozens and even hundreds of operations which, though secondary in character, are equally as important to an all-out war as the primary function of supplying clothing and equipment directly to the boys at the front. Time and space forbid the listing of them all. However, among the more prominent of such needs is lend-lease with all of its ramifications. By it we aid our allies who, because of their unfortunate position nearer the firing line and within bomber range, find it impossible to carry on the needed full-capacity industrial production. Some are handicapped by more severe calls for manpower than we have so far found it necessary to countenance. Others have found their textile plants under attack and partially destroyed. All have found it extremely difficult to transport safely an adequate quantity of raw materials for their needs and still others have never in past years produced adequate textiles for their normal needs, to say nothing of the abnormalities of war and the limitations of former sources of supply.

RELIEF NEEDS. Then there are the responsibilities for supplying textiles to the conquered countries which, because of our conquests and our victories, have found themselves dependent for clothing, health, and comfort upon their conquerors. In this respect the appeals for more clothing and cloth by General Eisenhower and our other generals at the front have been strong and they must be answered.

By far the greatest demands of war, however, are found at home. The armed forces buy and use practically everything. The Quartermaster Corps alone purchases over 8,000 different types of items. Probably 3,000 of these items are made directly from textiles. A large portion of other items are either combined with textile fabrics or packaged with textiles. The potato farmers of Idaho in their need for potato bags—the tobacco farmers of the South in their need for cloth to cover their seed beds—and the thousands of other types of producers of America may appear at a glance to be a far cry from a war emergency. Yet their needs frequently may be as essential to victory as are our soldiers. An all-out war necessarily involves a complete reorganization of our entire economy. Transportation, construction, merchandising, education, and many other operations, as well as agricultural and industrial production, make emergency war demands upon textile production which at times are critical in nature and essential to the prosecution of the war. It is scarcely necessary to touch on the fact that there exist certain minimum essential civilian requirements, regardless of how much debate there may be as to the exact extent.

It is for the solution of such abnormal problems that the WPB is organized, and the Textile, Clothing and Leather Bureau must assume the responsibility for such increases in textile production as the occasion demands. To the Textile Bureau goes the problem of production stimulation to meet this abnormal, emergency demand. Obviously the Division is dependent in this function upon the cooperation of industry in successfully meeting this demand.

Until recently, adjustments have been possible with a minimum of disruption. As productive problems mount, however, and as demand becomes more critical and capacity decreases, there will have to be more patriotic cooperation if further drastic steps are to be avoided in regulation of production. The WPB cannot assume the entire responsibility.

Heretofore, the productive capacity of our textiles has been more or less flexible. There has always been a surplus of reasonably skilled labor available from the farms nearby. Now the exemption of farm workers from the draft under certain conditions has served to discourage a shift from that source. Meanwhile, the shipyards and other critical war industries skirting textile mills have continued to attract textile workers who believe they can secure immunity from selective service; conversely, there has not been enough protection for key occupations in the textile mills such as doffers, weavers, spinners, card hands, etc. In solving these problems, considerably greater cooperation of government is needed.

MANAGEMENT'S RESPONSIBILITIES. There are, however, many phases of the problem for which considerable responsibility is squarely upon the shoulders of industrial management. Experience indicates that individual managements generally secure improved manpower results in proportion to the energy, foresight, and resourcefulness shown in tackling the problems. Intensified and enlarged learner training programs, use of more women, installation of personnel departments, institution of specialized job training courses, increased overtime at bottleneck points, better planning in shifting products and schedules to attain maximum utilization of facilities, installation of supplementary equipment at bottleneck points, use of better grades of raw material, increase in proportion and scope of incentive plans, intensified recruiting, installation of bus services, and many other types of managerial resourcefulness have been definitely effective. More of this type of honest-to-goodness cooperation is needed if we are to meet the new demands, or if we are even to hold to present productive levels. No step which has a reasonable chance of productive results should be overlooked.

It is a disturbing paradox today that in the face of two years of the best profits for most manufacturers in two decades there seems to be an increase

(*Continued on page 180*)

Selecting YARNS for KNITTING . . . a Major Problem Today

By C. W. BENDIGO
Assistant Editor, TEXTILE WORLD

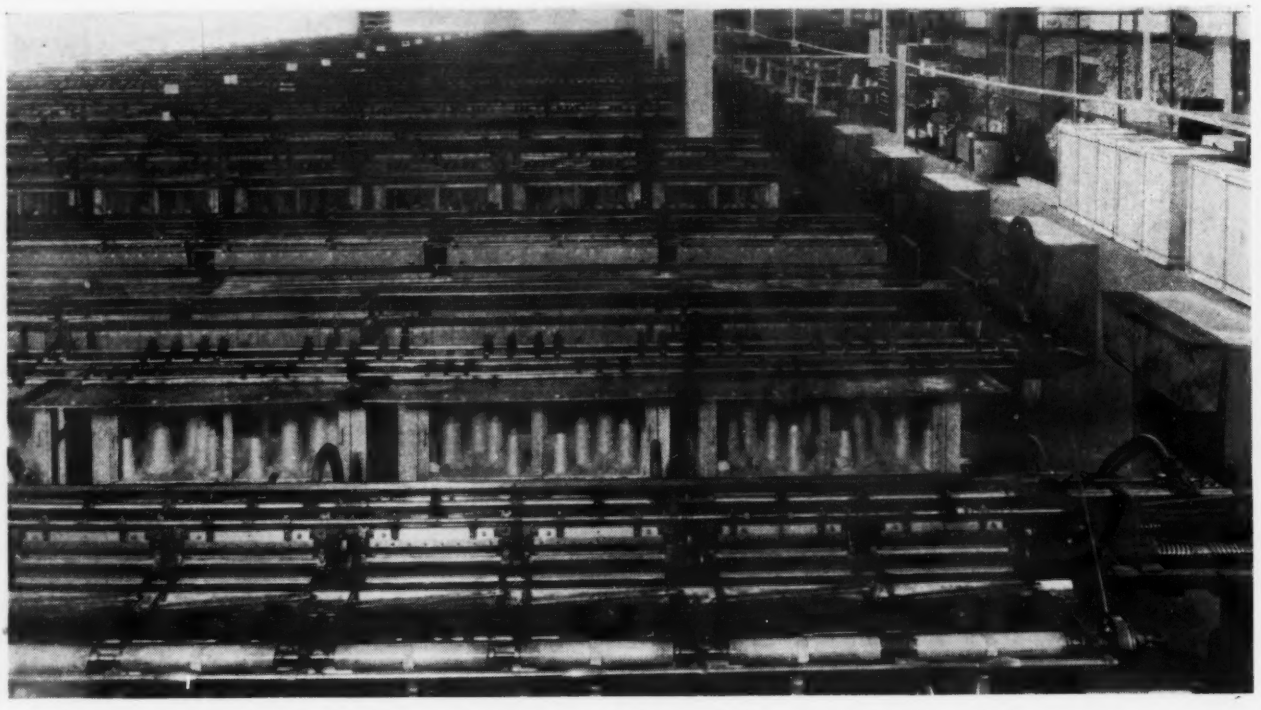
HIGHLIGHTS: Yarn Shortages Causing Many Substitutions—Tables Show Yarns Normally Used and Ranges Commonly Acceptable—Rayon and Cotton Twists Listed —WPB Yarn Minimum Given for Women's Hose.

"WE ARE CURRENTLY running yarns on our knitting machines which a year ago we would have thought impossible to use." That statement sums up the situation of many knitters, a situation which apparently is becoming worse. In many instances it is not a problem of specifying substitute yarns for particular fabrics, but rather of basing operating plans on whatever yarns are on hand or can be secured.

Cognizant of this, TEXTILE WORLD decided to devote its April knitting feature (April continues to be an issue of special help to knitters, in spite of the fact that the annual Knitting Arts Exhibition has been suspended) to the subject of yarn selection. We therefore consulted yarn suppliers, machinery builders, and knitters to see what has been their experience in regard to the yarns that could be run on the bulk of the equipment in place. This was done for the purpose of compiling the yarn tables presented in this section. These tables endeavor to show the range of yarns that can be run on the various machines, the most common yarns run, and other pertinent information (such as twists) that is sufficiently crystalized to be recorded.

The information is given only for general machine types, since to specify the various makes would result in unwieldy tables and unnecessary duplication of information. It is well known that the machine type and needle spacing, expressed as needles per inch or the equivalent, govern the maximum yarn that can be run—unless, of course, the maximum is first limited by the fabric to be produced. The minimum size is controlled either by the resulting fabric or by the physical yarn properties necessary to withstand knitting.

Both single and ply yarns are shown



Full-fashioned hosiery has experienced more yarn changes than any other type of knitting.

in the charts. It can normally be assumed that, if a ply yarn is shown, its single equivalent can also be used, provided the resulting fabric will be acceptable. Multiple plies can be used if desired. It can also be assumed that if two yarns are to be knit as one, which is often done, the sum of the two can be slightly greater than if only one end is used. For the most part, the effort has been to show single or plied yarns as they are currently being utilized.

No attempt has been made to cover novelty yarns. Blends can be assumed to be listed according to the system under which they are spun. For example, merino yarns might be under either cotton or worsted. The charts are based on every needle being used and on average conditions. There is no question that yarns heavier than the maximums shown can be run under special circumstances; but, barring error, heavier yarns are not generally used because of either machine or product limitations.

The industry has been divided into five parts for the purpose of the tables: I, Full-Fashioned Hosiery; II, Seamless Hosiery; III, Half-hose; IV, Underwear; and V, Outerwear. It is felt that this division permits maximum compactness and usefulness with the least overlapping. This division causes some duplication of machines listed, such as in seamless hose and half-hose and again in underwear and outerwear, but the different natures of the products so influence the yarns used that repetition is necessary. For example, 220N hose for men and for women.

Mention should be made of the effect of the loop formation on the selection of yarns. If a coarse, loose stitch is made, naturally a heavier yarn is possible than when a small, tight stitch is used. Generally, a soft, pliable yarn is desired. This means that for spun yarns there must be a balance between softness and strength. In cotton it has been felt that a twist multiple of 3.25 strikes that balance, although currently knitters are obliged to use cottons containing up to 4.50 TM. Much testing has been done in an attempt to correlate cotton-yarn elongation with the knitting ability of that yarn, but with no known success to date.

The place where yarn and knitting machine must be matched.

I. FULL-FASHIONED HOSIERY

	Gage	RAYON Deniers WPB Min.	RAYON Deniers Min.	RAYON Deniers Max.	RAYON Deniers Normal	RAYON Av. T.P.I.	COTTON Counts WPB[2] Min.	COTTON Counts Min.	COTTON Counts Max.	COTTON Counts Normal	COTTON Normal yarn* Single T.P.I.	COTTON Normal yarn* Ply T.P.I.	NYLON (Prewar) Deniers Min.	NYLON (Prewar) Deniers Max.	NYLON (Prewar) Deniers Normal	NYLON (Prewar) Av. T.P.I.
LEG	39	100	75	200	150	10-Z	70/2	80/2	50/2	60/2	30	23				
	42	100†	75	150	100	25-Z	80/2	100/2	60/2	70/2	35	25				
	45	75	50	100	75	30-Z	100/2	100/2	70/2	80/2	38	27	30	40	40	30-Z
	48	75	50	100	75	30-Z	100/2	100/2	80/2	90/2	40	28	30	40	30	35-Z
	51	50[1]	50	75	50	35-Z	140/2	120/2	90/2	100/2	42	29	20	30	20	40-Z
	54	50	50	75	50	35-Z	140/2	140/2	120/2	120/2	46	31	20	30	20	40-Z
	57	50	50	65	50	35-Z	140/2						15	30	20	40-Z
	60	50	50	65	50	35-Z	140/2						15	30	15	0
WELT	39	120	100	200	150	10-Z	70/2	70/2	50/2	60/2	30	23				
	42	120	100	150	125	10-Z	80/2	80/2	60/2	70/2	35	25				
	45	100	75	125	100	15-Z	100/2	100/2	70/2	80/2	38	27	60	70	70	10-Z
	48	100	75	125	100	15-Z	100/2	120/2	90/2	90/2	40	28	60	70	60	7-Z
	51	100	50	100	100	15-Z	140/2	140/2	100/2	100/2	42	29	40	60	60	7-Z
	54	75	50	75	75	20-Z	140/2	140/2	110/2	110/2	44	30	40	60	40	10-Z
	57	75	50	75	75	20-Z	140/2						30	40	30	15-Z
	60	75	50	75	75	20-Z	140/2						30	40	30	15-Z
REINFORCING (Heel & Sole)	39	100	100	125	100	15-Z	100/2	100/2	70/2	80/2	38	27				
	42	100	75	100	100	15-Z	100/2	100/2	80/2	80/2	38	27				
	45	100	75	100	100	15-Z	100/2	100/2	90/2	90/2	40	28	60	70	60	7-Z
	48	100	75	100	100	15-Z	100/2	120/2	100/2	100/2	42	29	60	70	60	7-Z
	51	75	50	75	75	20-Z	140/2	120/2	100/2	110/2	44	30	40	60	40	10-Z
	54	75	50	75	75	20-Z	140/2	140/2	110/2	120/2	46	31	30	40	40	10-Z
	57	75	50	75	75	20-Z	140/2						30	40	30	15-Z
	60	75	50	75	75	20-Z	140/2						30	40	30	15-Z
TOE	39						90/2	90/2	70/2	80/2	38	27				
	42						90/2	100/2	80/2	90/2	40	28				
	45						100/2	100/2	80/2	100/2	42	29	60	70	60	7-Z
	48						100/2	120/2	90/2	100/2	44	30	60	70	60	7-Z
	51						120/2	140/2	100/2	120/2	46	31	40	60	40	10-Z
	54						140/2	140/2	120/2	120/2	46	31	30	40	40	10-Z
	57						140/2						30	40	39	15-Z
	60						140/2						30	40	30	15-Z

Rayon not generally used—see Cotton

[1] WPB requires 50 den. to have strength of 2.3 grams per denier.
† WPB considering min. of 75 den. at time of going to press.
* Although 2-ply yarns are specified, equivalent single counts may be used.
[2] FTC Minimums for lisle-twist yarns.

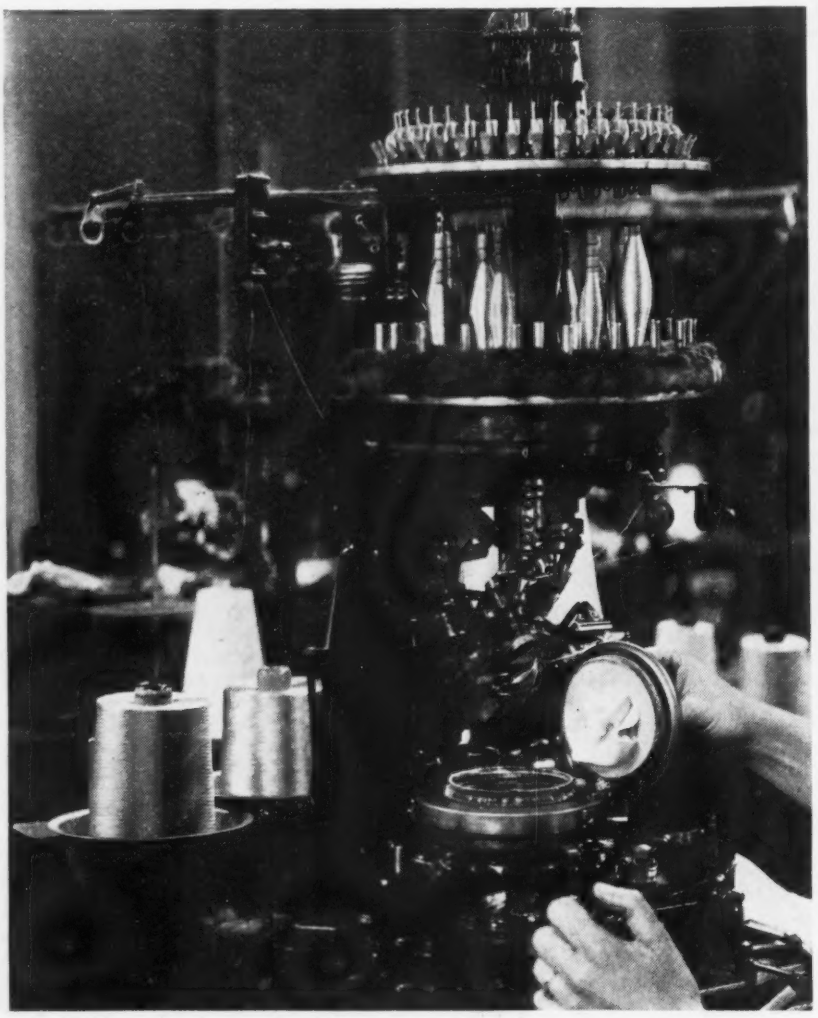
I. FULL-FASHIONED HOSIERY

NO BRANCH OF TEXTILES has been obliged to make so many and such rapid yarn changes as the full-fashioned hosiery section. Changes are still being made, most of them with the knowledge that they are only temporary. Regulations established by OPA, and later WPB, have done much to standardize the yarn sizes that are currently used. The latest minimums are shown on the full-fashioned hosiery chart. It will be noted that in most cases the legal rayon minimum is above the minimum that otherwise might be used, because the WPB is primarily interested in utilizing a limited rayon-yarn supply in hosiery that will have better wearing qualities, even at the sacrifice of appearance. Since the chart is expected to be of value long after the WPB restrictions are lifted, the lower minimum is included.

In full-fashioned hosiery, the yarns and the product limit the chart range more than the machine. Note, for example, that yarn as fine as 15 den. (nylon) can be used on 60-gage machines but that the finest rayon shown is 50 den. and that it should be high-strength yarn. Of course, strength is not the only factor; yarn for full-fashioned hosiery must also be smooth and pliable to withstand the knitting action.

PREPARING HOSIERY YARN. The most important thing about rayon for full-fashioned hosiery is the way that the yarn is prepared. Until the advent of the wax-type treatments, results—expressed in appearance, quality, and press-offs—were discouragingly poor. The success of solvent-soluble waxes is well known. Currently water-soluble types and wax blends are also used with increasing success. The tendency seems to be toward substantially less amounts of wax than the 10% that was once considered correct.

Due to the low number of turns inserted in the various deniers (see table), treatment of the yarn is not necessary for it to withstand twisting. Accordingly, the finish so necessary for knitting is currently being applied in some plants during the coning opera-



Rayon half-hose uses cotton for rib tops and at points of wear. Rayon yarn for half-hose is oiled especially for knitting.

the same counts will be common in the future. The table shows how the bulk of the yarn was employed at the time it was withdrawn. It should be mentioned that 70 den. had just been supplanted by 60 den. as a welt yarn, and 30 den. was becoming the maximum leg yarn. A 15-den. mono-filament yarn, which carried no twist, had barely made its appearance and there was considerable interest in it. Nylon was limited to use on machines of 45-ga. or finer, and the chart does not show this yarn on 42- and 39-ga. machines, although unquestionably it can be run on these gages. When nylon is again used for hosiery, it can be assumed that it will be confined to the finer gages, during the initial period at least.

In using the chart, one should not assume that, if a certain yarn is shown as normal for the leg, the corresponding welt, reinforcing, and toe yarns are automatically used in combination with it. The use of the four yarns varies considerably depending upon the product desired. Generally the reinforcing yarn varies inversely with the leg yarn, but not always. The picture is further complicated by the use of cotton in "rayon" hosiery.

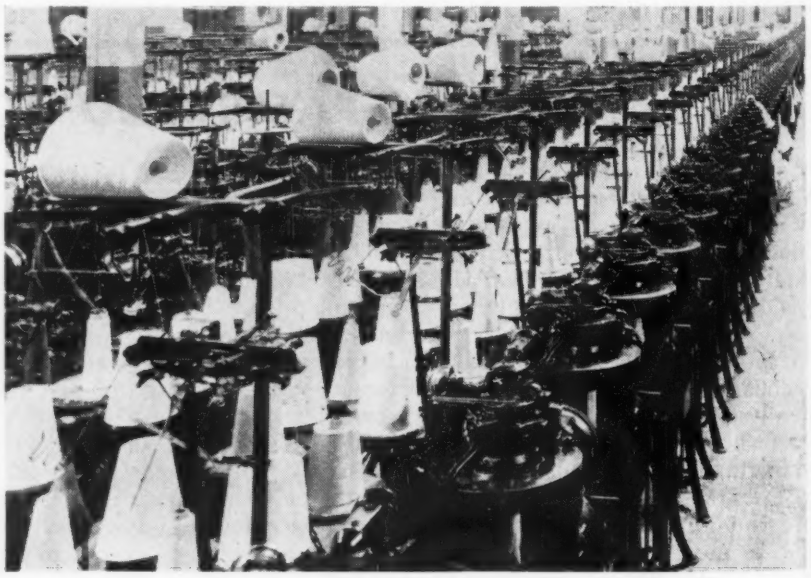
The requirements of yarns for womens' hosiery are more exacting than for the other branches of knitting. The yarns must be fine, strong, uniform, and elastic. This often means premium yarns are needed. The twists necessary for a product that will be acceptable are the source of many knitting problems.

The table assumes lisle-twist yarns

tion. Considerable trouble is experienced because the rayon is not plied and therefore compensating twists cannot be employed. The twisted yarn is often lively. Most effective control seems to be correct twist-setting and close tolerances in conditioning periods and humidity.

In the charts, all three types of rayon have been grouped; but of course, the most important is the viscose process, followed by cuprammonium and acetate. The turns per inch given are the average of those reported by several throwsters. It should be stated that for leg yarns the range appears to be 5 turns more or less than most of those shown. WPB also currently regulates, under General Limitation Order L-274 and amendments, the minimum turns that must be inserted.

NYLON. Nylon deniers were in a state of flux at the time this yarn was withdrawn from civilian use, and therefore there is some question whether



Large quantities of yarns are needed to keep in operation batteries of machines such as shown here.

to be normal for use in full-fashioned cotton hosiery, and twists shown are accordingly higher than those given for corresponding cotton counts in the seamless-hosiery table.

No distinction has been made between regular and strong rayons except to point out that WPB requires the 50-den. to be made of strong yarns. Virtually all strong rayon is being diverted to war needs (which does not include the bulk of full-fashioned hosiery), but many persons feel that, once available, the strong rayons will have a definite permanent place. If so, the deniers used will undoubtedly be lower than those shown in the table.

II. SEAMLESS HOSIERY (Women's)

			RAYON					COTTON						NYLON (Prewar)			
			Deniers					Counts				Normal yarn		Deniers			
	Gage	3½" Ndls.	WPB Min.	Min.	Max.	Normal	T.P.I.	WPB Min.	Min.	Max.	Normal	Single T.P.I.	Ply T.P.I.	Min.	Max.	Normal	T.P.I.
LEG	48	176	150	150	300	150	PT	50/2	50/2	30/2	40/2	20	14				
	48	200	150	150	300	150	PT	50/2	50/2	40/2	40/2	20	14				
	48	220	150	150	250	150	PT	60/2	60/2	40/2	50/2	23	15				
	54	240	150	125	250	125	10-S	60/2	60/2	50/2	60/2	25	16				
	54‡	260	125	125	250	125	10-S	80/2	80/2	60/2	70/2	27	18				
	70	280	125	100	250	100	15-S	100/2	100/2	70/2	80/2	29	19				
	70	300	100†	75	150	100	15-S	120/2	120/2	80/2	90/2	31	20				
	70	320	75	75	125	75	20-S	120/2	120/2	80/2	100/2	32	21				
	70	340	75	65	100	75	20-S	120/2	140/2	100/2	120/2	35	23	20	40	30	30-S
	75	400*	75	50	75	50	25-S	——	140/2	120/2	120/2	35	23	15	30	30	30-S
WELT	48	176	150	150	300	300	PT	50/2	50/2	30/2	40/2	20	14				
	48	200	150	150	300	300	PT	50/2	50/2	40/2	40/2	20	14				
	48	220	150	150	250	250	PT	60/2	60/2	40/2	50/2	23	15				
	54	240	150	125	250	250	PT	60/2	60/2	50/2	50/2	23	15				
	54‡	260	150	125	250	150	PT	70/2	70/2	50/2	60/2	25	16				
	70	280	150	100	200	150	PT	80/2	80/2	60/2	80/2	27	18				
	70	300	125	100	150	125	PT	100/2	100/2	70/2	80/2	29	19				
	70	320	100	75	150	100	10-S	120/2	100/2	80/2	80/2	29	19				
	70	340	100	75	125	100	10-S	120/2	120/2	100/2	100/2	32	21	40	60	60	7-S
	75	400*	100	75	100	100	10-S	140/2	140/2	120/2	120/2	35	23	40	60	60	7-S
HEEL & TOE	48	176	Rayon not generally used—see Cotton					36/2	50/2	30/2	36/2	19	13				
	48	200						40/2	50/2	40/2	40/2	20	14				
	48	220						40/2	60/2	40/2	50/2	23	15				
	54	240						40/2	60/2	40/2	50/2	23	15				
	54‡	260						50/2	70/2	50/2	60/2	25	16				
	70	280						60/2	80/2	60/2	70/2	27	18				
	70	300						80/2	100/2	80/2	80/2	29	19				
	70	320						100/2	100/2	80/2	80/2	29	19				
	70	340						120/2	120/2	80/2	80/2	29	19	40	70	60	7-S
	75	400*						——	140/2	100/2	100/2	32	21	40	70	60	7-S
HIGH HEEL AND DOUBLE SOLE (if used) x	48	176						——	70/1	50/1	60/1	25	16				
	48	200						——	80/1	60/1	70/1	27	18				
	48	220	50			75		70/1	80/1	60/1	70/1	27	18				
	54	240	50			75		70/1	90/1	70/1	80/1	29	19				
	54‡	260	50			50		80/1	90/1	70/1	80/1	29	19				
	70	280	50			50		100/1	100/1	90/1	100/1	32	21				
	70	300	50			50		100/1	120/1	100/1	100/1	32	21				
	70	320	50			50		100/1	120/1	100/1	120/1	35	23				
	70	340	50			50		100/1	140/1	120/1	120/1	35	23				
	75	400*						——	140/1	120/1	140/1	36	25				

* 3 3/4-in. Machine
PT—Producers Twist.
† WPB considering min. of 75 den. at time of going to press.
‡ Also 60 ga.
x WPB currently prohibits sole splicing yarns in cotton hose or rayon hose if main yarn is 100 den. or over.

II. SEAMLESS HOSIERY (Women's)

FOUR YARNS are shown on the women's seamless hosiery table as composing a stocking, but this does not mean that four different yarns are always used. As a matter of fact, only three are generally employed, especially now that WPB prohibits the use of sole-splicing yarns in cotton hose and in rayon hose if the main yarn is 100-den. or over. It should also be pointed out that 20% of women's circular hosiery machines in place are of the "string" type, and these machines would have use for only a very limited number of the yarns shown.

A 3½-in. circular machine has been selected as standard, since most machines are of this size; in fact, 3½-in. and 3¾-in. comprise about 98% of the circular machines devoted to women's hosiery. Currently, around 60% of the machines are from 220- to 300-needle, but the trend is strong toward fine machines such as 340- to 400-needle.

Note that in the table nylon is shown for only the 340- and 400-needle machines, as nylon was restricted to machines of 340 needles and finer. There have been some intermediate machines built, such as 360; but they are not listed since they are few and since the yarns that they use can be determined from the machines shown. There is little doubt that when nylon is again available it will once more be restricted to the fine machines.

There is considerable speculation as to the place of Vinyon, either regular or the more elastic Vinyon E, in hosiery. It is generally felt that it, too, will be suitable for seamless hosiery, but it seems to be too early to predict how this yarn will be used.

Note that, as in the case of the full-fashioned table, the WPB yarn minimums are given and that again the minimums which normally would be used are frequently lower. This does not mean disagreement as to what minimums are correct, as will be evident when the purpose of the WPB minimums is recalled. WPB also specifies lowest twist that may be inserted in rayon yarns for their various uses. All twists shown either equal or exceed those minimums. Twist direction for circular hose is normally S; for full-fashioned hose it is Z.

III. HALF-HOSE (Men's)

			RAYON			COTTON			WORSTED			WOOLEN		
			Deniers			Counts			Counts			Runs		
	Ndls.	Dia.	Min.	Max.	Normal	Min.	Max.	Normal	Min.	Max.	Normal	Min.	Max.	Normal
LEG AND FEET	72	4-1/4				3	1	2	4	2	3	1.5	1	1
	84	4				8	4	6	12	6	8	4	2	3
	108	3-3/4				20/2	10/2	14/2	2/30	2/15	2/20	5	2.5	3.5
	132	4-1/4				30/2	14/2	16/2	2/45	2/20	2/24	8	3	4
	144	3-3/4				36/2	16/2	20/2	2/54	2/24	2/30	10	4	5
	160	3-3/4	200	600	450	40/2	20/2	24/2	2/60	2/30	2/36			
	176	3-1/2	200	450	300	44/2	24/2	30/2	2/66	2/36	2/45			
	200	3-1/2	150	450	300	50/2	30/2	36/2	2/70	2/40	2/50			
	220	3-1/2	150	300	250	60/2	36/2	50/2	2/80	2/50	2/70			
	240	3-1/2	125	300	200	70/2	40/2	60/2	2/90	2/60	2/80			
RIB TOP	72	4-1/4				3	1	2	4	2	3	1.5	1	1
	84	4				8	4	6	12	6	9	4	2	3
	108	3-3/4				10	5	8	15	8	12	5	3	4
	132	4-1/4	Rayon not generally used—see Cotton			30/2	14/2	16/2	2/44	2/22	2/24	7.5	4.5	5
	144	3-3/4				30/2	16/2	20/2	2/44	2/24	2/30	7.5	5.5	6
	160	3-3/4				36/2	18/2	24/2	2/50	2/26	2/30			
	176	3-1/2				40/2	20/2	28/2	2/60	2/30	2/36			
	200	3-1/2				44/2	24/2	30/2	2/66	2/36	2/40			
	220	3-1/2				44/2	24/2	36/2	2/66	2/36	2/50			
	240	3-1/2				50/2	30/2	40/2	2/70	2/44	2/60			
HEEL & TOE	72	4-1/4				8	1	2	4	2	3	1.5	1	1
	84	4				8	5	6	12	6	9	4	2	3
	108	3-3/4				12	6	7	18	12	16	6	4	5.5
	132	4-1/4	Rayon not generally used—see Cotton			30/2	14/2	16/2 24/1	2/44	2/20	2/36 1/36	7.5	4.5	6.5
	144	3-3/4				30/2	16/2	20/2 16/1	2/44	2/24	2/40 1/40	7.5	5.5	7
	160	3-3/4				36/2	18/2	28/2 28/1	2/50	2/26	2/42 1/42			
	176	3-1/2				40/2	20/2	30/2 30/1	2/60	2/30	2/44 1/44			
	200	3-1/2				44/2	24/2	36/2 60/1	2/66	2/32	2/50			
	220	3-1/2				44/2	24/2	30/2	2/66	2/36	2/50			
	240	3-1/2				50/2	30/2	36/2	2/70	2/44	2/60			
HIGH HEEL AND DOUBLE SOLE (if used)*	72	4-1/4												
	84	4												
	108	3-3/4	Rayon not generally used—see Cotton											
	132	4-1/4												
	144	3-3/4												
	160	3-3/4				60	30	40						
	176	3-1/2				70	30	40						
	200	3-1/2				80	40	50						
	220	3-1/2				90	50	60						
	240	3-1/2				90	60	70						

* WPB currently prohibits sole splicing yarns in men's cotton hose.

Selecting **YARNS for KNITTING**

III. HALF-HOSE (Men's)

THE TABLE FOR MEN'S HALF-HOSE is intended to cover both transfer and automatic machines and the various types of hose from bundle goods to fine dress socks. The various needle counts and machine diameters were chosen to represent the larger groups of machines in place. That explains the variation in diameters given. Machines coarser than 72-needle are in use, but the number of machines under 84-needle is relatively small. Approximately 60% of the half-hose machines are 3½-in. and have 176 to 240 needles. Over 95% are 3½-in. or 3¾-in.

Worsted yarn is shown as being used for rib tops and for heel and toe yarn. It should be mentioned that cotton yarns are often used on socks employing worsted yarn in the leg and foot. A common practice is to use a cotton yarn to splice the main worsted yarn when knitting the heel and toe of a wool sock.

Cotton reinforcing yarns for high heel and double sole are tabulated, although currently such reinforcing is prohibited for civilian cotton hose.

Excepting rayon, ply yarns are generally shown for machines of 108 needles or more, but often single yarns of equivalent weights are used. Another common practice is to use two ends of approximately half the sizes shown, and this results in a somewhat fuller fabric. An advantage of using the two ends as one is that knots will knit through better.

The yarns listed apply to both dyed and grey, except for novelty decorative threads.

IV. UNDERWEAR

THE DIAMETERS of the various circular machines are not shown in the underwear table, since the yarns that can be, and are, used depend upon the type machine and the needles per inch expressed as cuts. On the tricot machine, the needles per inch remain fixed and the factor which limits the maximum size of yarn is the number of bars, or ends, used per needle.

Considerable speculation exists as to the possibilities of the strong synthetics on tricot machines, since these machines have been limited somewhat by yarn fineness and strength. The minimums shown are by no means the finest that the machines can knit into attractive cloth but rather the minimums currently practicable.

While this table is the smallest of the five, it is by no means of least importance. Both the circular and tricot machines shown are volume producers, particularly the former. Their staple products consume millions of pounds of yarn and, mainly for this reason, many changes in yarns are being made to keep them running. For example, 36s cotton has for years been a standard yarn for 28-cut machines. Currently they are running anything from 30s to 40s—the 36s are plied for use in 6-oz. army shirting or are being used for other woven war cloths.

The chart shows single yarns throughout, although frequently plied yarns or two ends of approximately half weight each are knitted.

Single yarns used in knitting should be as even as possible since they are not leveled in doubling as are plied yarns. If a yarn is uniform, the maximum count which can be knitted is, naturally, greater than that of a yarn containing thick and thin places.

Raschel machines knitting girdles and other foundation garments are normally classified as underwear machines. They have not been included in the underwear tables because in this field they use covered rubber yarns. The present condition of covered rubber yarns is so unsettled that this type of yarn varies considerably as to particular characteristics.

At present the yarns being used on the various underwear machines are affected considerably by price ceilings set by OPA. For a while the trend of rayon underwear cloth was toward the finer yarns and cuts because of greater profit possibilities. Later, a change in price regulations aided the coarser yarns and cuts. Consequently, the trend is changing.

IV. UNDERWEAR

			RAYON			COTTONS†			WORSTED†		
			Deniers			Counts			Counts		
		Cut Ndls. in.	Min.	Max.	Normal	Min.	Max.	Normal	Min.	Max.	Normal
CIRCULAR	Jersey Stitch and Novelty	18				24	16	20	45	24	37
		19				26	17	22	45	25	41
		20	150	300	250	28	18	24	54	27	45
		21	150	300	200	30	19	26	60	39	48
		22	150	300	200	32	20	28	60	30	53
		24	125	200	150	36	24	32	75	36	60
		26	100	200	150	40	24	36			
		28	75	200	150	40	30	36			
		28*	75	300	150	55	30	36			
		34*	50	150	75	80	50	60			
	1 x 1 Rib	8				16	10	13	24	15	20
		10				18	10	14	30	20	24
		12				30	16	26	54	30	36
		14			150	40	24	36	60	38	45
		16				50	30	40	75	45	54
WARP KNITTING	Tricot 28 Ndls./in.	Bars									
		1	40	300	100	100	30	50			
		2	40	150	75	100	40	80			
		3	40	100	75	100	60	100			
	Milanese		40	125	75	100	40	60			

† Although single yarns are listed, ply yarns of approximately equivalent counts are frequently used. At times two threads totaling the sizes given (or slightly more) are employed.
* Spring beard needles only.

V. OUTERWEAR

	Machine	Ndl. Hook Size	Cut Ndl. in.	RAYON Deniers Min.	RAYON Deniers Max.	RAYON Normal	COTTON Counts Min.	COTTON Counts Max.	COTTON Normal	WORSTED Counts Min.	WORSTED Counts Max.	WORSTED Normal	WOOLEN Runs Min.	WOOLEN Runs Max.	WOOLEN Normal
CIRCULAR	Latch Needle Sinker Top Jersey Stitch	12	6				6	2	4	10	4	8	3	1	2
		12	8				8	3	6	12	6	10	4	2	3
		18	10				10	4	8	18	10	16	6	3	4
		24	12				16	6	10	22	12	18	12	6	8
		36	14				20	8	14	30	15	26	16	10	12
		36	16				24	10	16	36	17	28			
		36	18	200	450	300	26	12	18	42	22	36			
		42	20	150	450	300	32	16	28	46	26	40			
		50	22	100	300	300	40	24	32	50	36	42			
	Spr. Ndl. (Dress Fabric)		24	100	300	150	40	20	26	50	28	30			
			26	100	300	150	50	24	30	60	32	36			
			28	75	300	150	50	30	36	70	36	40			
			34	50	150	75	80	50	60						
	1 x 1 Rib*	Ndl. Dia.													
		.074	2½				6	2	2.5	2/20	2/4	2/8	5	2	1
		.060	3				6	2	3	2/20	2/6	2/10	1	3	2
		.060	4				8	4	6	2/18	2/8	2/12	2	4	3
		.040	5				9	5	7	2/22	2/9	2/16	2.5	5	3.5
		.039	6–7		Rayon not generally used		10	6	8	2/26	2/10	2/20	3	5	4
		.034	8				16	8	10	2/30	2/18	2/26	4	6	5
		.034	9				18	10	14	2/40	2/24	2/30			
		.029	10				22	12	16	2/46	2/30	2/36			
		.029	11				24	16	18	2/48	2/32	2/40			
		.029	12				28	18	22	1/30	1/20	1/26			
FLAT	Flat Stitch, Jacquard, Links, and Lamb		5				5/10	7/10		6/18	6/14				
			6				6/20	9/20		2/16	2/11				
			7		Rayon not generally used except for decoration		5/20	8/20		2/16	2/11				
			8				4/20	6/20		2/22	2/14		4.5	4	4.5
			10				2/20	4/20		2/32	2/22		5	4.5	5
			12				2/40	5/40		2/42	2/26		6	5	6
WARP KNITTING	Milanese & Tricot	Ndl.	Bars												
		28	2	55	150	75	80	30	50	75	40	60	10	8	8
		28	3	45	100	75	80	40	60	75	50	60	10	8	8
	Keyloom & Raschel	12	1&2	55	300	150	80	18	30	75	30	45	10	4	6
		18	1&2	45	300	150	80	18	30	75	30	45	10	4	6
	Simplex	30	2	45	75	50	70	120	80						
		32	2	45	75	50	70	120	80						

* Inner dial machines. For outer dial use next heaviest cut line; for example, for 10-cut outer dial machines, read across 9-cut line.

V. OUTERWEAR

A GREATER VARIETY of machines are used in knitting underwear than any other class of knit goods, as is reflected by the outerwear chart. All yarns are used and all combinations. In most instances, the maximum yarns shown are the greatest that the machine type and its needles will accommodate practicably, while the minimum yarns are those which are about as light as will produce an acceptable fabric. There are many exceptions here, to be sure, since most outerwear is style material. The chart does not attempt to include shawls and similar filmy knitwear but rather is confined to the larger-volume items. Outerwear knit fabrics are of such great variety that many tables would be needed to cover all types.

Single-yarn equivalents are shown for the most part, although the use of ply yarns is prevalent and often two ends of approximately half-size yarn are fed. At present, the yarn supply greatly influences what shall be used, but normally the fabric effect sought governs the yarn. Feeding of more than one of the finer ends produces a softer, fuller fabric than that resulting from a plied thread. Rayons are not shown for flat-bed machines, since they manufacture virtually no filament-rayon fabrics, but dyed rayon yarns are often used on jacquard machines for decorative effects. The woolen yarns shown for flat-bed machines are chiefly cashmere.

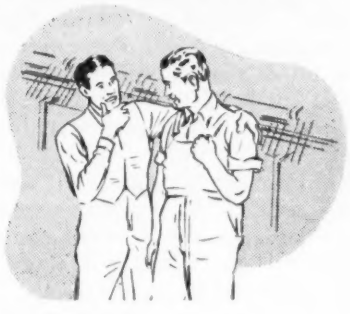
Heavy fleecings, suitings, astrakans, and coatings involving the use of face, binding (tie), and backing yarns are not meant to be included.

RAISING YOUR WORKERS' EFFICIENCY

FACED WITH THE PROBLEM of increasing output of their mills despite a growing shortage of labor, many textile manufacturers are aware of the necessity for taking every step possible to raise the efficiency of individual workers. To aid employers in their efforts to increase production through better utilization of manpower, various War Agencies of the Government have inaugurated several programs which are being adopted in numerous plants in the textile and other industries. Four of these projects of particular interest to textile men are: (1) The new Job Relations Training Program sponsored by the War Manpower Commission as an outgrowth of the Job Instructor Training Program described in the March, 1942, issue of Textile World; (2) a Physical Fitness Program now being put into operation by the Federal Security Agency; (3) a program for Selecting of Employees Through Aptitude Tests, developed by the War Manpower Commission; and (4) Organization of Labor-Management Committees advocated by the War Production Board. This section on Raising Your Workers' Efficiency is devoted to four articles on these programs.

Developing TEAMWORK Through JOB RELATIONS TRAINING

HIGHLIGHTS: War Manpower Commission Inaugurates Six-Day Course for Overseers—Aim Is to Show Supervisors How to Obtain Maximum Cooperation from Workers.



OVERSEERS, have you found out how to work well with people to prevent lost production because of misunderstandings on the job, how to impress workers with their vital role in the war effort, and how to prevent slowing down of workers because of conditions off the job? If you haven't, then you can benefit from the Job Relations Training of the Training Within Industry Service of the War Manpower Commission. Working well with people is an art developed usually by close observation and logical thinking and action based on long experience. However, since we can learn from the experiences of others, it has been possible to analyze the basic principles of good job relations as practiced by successful supervisors and enable less experienced foremen to acquire in a short time the skills of handling people well. Some of these basic principles are outlined below, and following that outline information is given on the intensive courses offered.

Even if you are comparatively new

TWI District Offices in Textile Areas

Northern New England—Maine, Massachusetts, Vermont, New Hampshire. Room 1035, Park Sq. Bldg. Boston, Mass. (Hubbard 0380).

Southern New England—Connecticut, Rhode Island. Room 515, 152 Temple St., New Haven, Conn. (6-5186).

New Jersey. Room 601, 605 Broad St., Newark, N. J. (Mitchell 2-1114).

Maryland. Room 3106, Baltimore Trust Bldg., Baltimore, Md. (Plaza 1654).

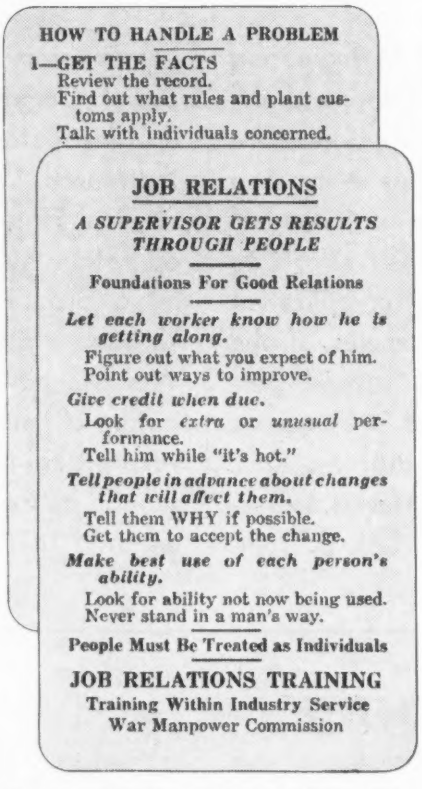
Atlantic Central — Virginia, North and South Carolina. Raleigh Bldg., Fayetteville & Hargett Sts., Raleigh, N. C. (2-3306).

Southeastern—Georgia, Florida, Alabama, Mississippi, Central and Eastern Tennessee. Room 603, Grand Theater Bldg., Atlanta, Ga. (Hemlock 6890).

on your job, many problems have developed which have puzzled you as to the correct way to handle them. You have probably taken some immediate action which the occasion demanded and at your leisure repented your awkwardness in handling the situation. You have probably had experiences as follow: a worker refusing to do a particular job, an employee who does not come to work regularly, people that are easily discouraged and who make those around them dissatisfied, workers going over your head to see the boss, workers quitting for real or fancied grievances, and changes in the plant or in your work that spread confusion. All job-relations problems do not come up at once—it may take months to get experience on them. Not only must a foreman have a high degree of skill in handling his own problems, but he must make the foundation knowledge for good job relations a part of that skill.

THE FOUNDATION. Good relations with those whose work you direct are founded on a few basic principles. These principles are: Let each worker know how he is getting along. Give credit where due. Tell people in advance about changes that will affect them. Make the best use of each person's abilities. These principles do not apply to actions to be taken only once and at rare intervals. They apply to all workers and when followed day-to-day improve job relations.

Telling the Worker How He Stands. It is important to keep people posted on how they measure up to what is expected of them. The "everything is all right unless I tell you so" attitude does not fit into modern supervision. The man who is doing all right should be told so. It is often more important to check the person who is just beginning to slip. Workers don't want to find themselves beyond redemption before being told.


HOW TO HANDLE A PROBLEM
1—GET THE FACTS
Review the record.
Find out what rules and plant customs apply.
Talk with individuals concerned.
JOB RELATIONS
A SUPERVISOR GETS RESULTS THROUGH PEOPLE
Foundations For Good Relations
Let each worker know how he is getting along.
Figure out what you expect of him.
Point out ways to improve.
Give credit when due.
Look for extra or unusual performance.
Tell him while "it's hot."
Tell people in advance about changes that will affect them.
Tell them WHY if possible.
Get them to accept the change.
Make best use of each person's ability.
Look for ability not now being used.
Never stand in a man's way.
People Must Be Treated as Individuals
JOB RELATIONS TRAINING
Training Within Industry Service
War Manpower Commission

Card furnished to Job-Relations Trainers. One side is on Foundations for Good Relations; the other, on How to Handle a Problem.

Give Credit When Due. The workers and the group deserve to know when their efforts have contributed to an accomplishment. Recognition of good work or faithful performances makes it easier to get extra effort again. You like to get proper credit, yourself!

Tell of Changes in Advance. If you give the reasons for changes before they are made, you will avoid many misunderstandings. It is not always possible to let the worker "in" on all decisions which affect him, but he can and should always be considered.

Make Best Use of Each Person's Ability. Give each person as much and as responsible work as he can handle and take advantage of special interest in kinds of work. Everyone, particularly in war time, likes to feel that he is working at his highest level of skill and ability.

Treat People as Individuals. While these foundation principles apply to all people, you cannot treat them all alike. Each of us wants to be known for his own personal characteristics, and not as a time card number or the "new man". There are things that you feel are important to you as an individual and you must remember other individuals feel the same way.

HOW TO HANDLE A PROBLEM. Because changes occur and problems do arise, you need skill in handling the situations within your responsibility. Hasty action may mean that you have a more difficult situation to handle later. When a problem arises, consider these steps as the outline for action:

1. Get the facts—be sure you have the whole story.
2. Weigh and decide—don't jump at conclusion.
3. Take action—don't pass the buck.
4. Check results—did your action help production?

Get The Facts. Problems may come up because of something that happens at the moment, but you need to get the whole background. Some of it will be made up of facts about the employee—his age, length of service, and experience on the job.

You will need, of course, to take into consideration the plant rules and just "the way things are done here". Remember, in getting the facts that if you classify the person as a "good fellow" or a "chronic kicker" you are not really looking at an individual person. You must regard him as a person different from his work partner and from every other person in the department in every single aspect, whether by a very slight or a very great degree.

As a supervisor you must know what that man thinks and feels about himself and the people around him. Find out what the man wants—is he able to express it—and what does he think should be done and why? The experienced supervisor knows that he must consider such other factors as health or working conditions which may be affecting the man.

If more than one person is involved you must go through the same fact-finding steps for each person. Before you can plan what to do, you must

be sure you have the whole story.

Weigh and Decide. All these facts must be assembled and considered together. When all the factors are brought together, fitted in, and considered in the light of their relations to each other, many times the right answer almost "jumps out." The wise thing to do becomes clearer.

Certainly you, the man on the spot, are in the *best* place to know the *right* thing to do, for you have the most complete picture of the assembled facts. If you jump to conclusions, you make poor use of your strategic position. When you act without evaluating the whole situation you are likely to have more difficult problems to handle later.

Take Action. While jumping to conclusions is a poor way to handle supervisory problems, putting off action may be equally unfortunate. A supervisor cannot "pass the buck" or he, himself, will be by-passed.

However, it is not "passing the buck" to recognize after full consideration of the problem that there are some situations which you cannot handle yourself. You also make a decision and take action when you size up a situation as one on which you need help, or recognize one which is not within your own job to handle and see that it is passed on to the person who does have the responsibility and authority.

In any action, timing must be considered—the wrong "time" can make it the wrong thing to do.

Check Results. You must determine whether your action worked. If it did not, you must re-examine the whole situation and attempt to find what of importance you overlooked. Checking the results of action is necessary in every situation because conditions change, and what worked with one individual will not necessarily work with another.

GOOD SUPERVISION. One of the hardest parts of your job will be that of giving consideration to the importance of people in a problem situation and knowing what is important to each individual person. This is not simply a matter of determining what is right or wrong or deciding what is just or unjust, but is a practical approach to effective supervision. It may be thought to take too much time but day-to-day use of this skill in dealing with people will save you time in the long run.

If you know people well enough to build them into a smooth operating group you will be playing an important part in war production.

TRAINING PROGRAM. To enable overseers and other supervisors to acquire skill in applying the principle outlined here, the War Manpower Commission has developed a Job Relations Training Program. The program consists of two parts: (1) a six-day institute or course for Job Relations Trainers, and (2) a series of five 2-hr. sessions for supervisors conducted by a Job Relations Trainer. The six-day Institute will be conducted by Training Within Industry Representatives of the WMC without cost in any plant working on war contracts. The five 2-hr. sessions for supervisors are generally held in the plant at times which are convenient to the companies and those who attend. Best results are obtained with groups of ten. The participants do not spend their time discussing theory, but on working out their own job relations problems. To get started contact one of the offices listed in the box on page 90.

Physical FITNESS FOR GREATER PRODUCTION

HIGHLIGHTS: Physically Fit Men and Women Needed to Increase Output of Textiles—Industry Commission Launches Nationwide Movement—Suggestions to Employers and Employees on Establishing Well-Rounded Programs.

Balanced relaxation, fresh air, sunshine, and regular exercise are among elements necessary for physical fitness.

PHYSICALLY FIT MEN AND WOMEN workers who can produce a maximum in the war effort is the aim of a nation-wide program now being put into operation by the Federal Security Agency to curb absenteeism and other handicaps resulting from physical deficiencies. Federal Security Administrator Paul V. McNutt, in announcing a commission of thirteen outstanding Americans to carry on the program in industry, asserted: "It is most important that all working men and women in America realize that physical fitness in industry is as vital to our cause as it is with our armed forces." Chairman of the commission is Dr. William D. Jacobs, president of Presbyterian College, Clinton, S. C. Textile manufacturers, faced with the necessity of increasing their production despite a dwindling supply of manpower, may be expected to take the

lead in encouraging their employees to become and keep physically fit.

The secrets of physical fitness are regular exercise, proper sleep, good food, balanced relaxation, fresh air and sunshine, and medical care. To a large extent, maintaining physical fitness is a personal responsibility. However, it is the responsibility of the employer to aid each worker to increase his or her physical fitness by encouraging the establishment of physical-fitness programs. Some of the suggestions made by the Commission on Physical Fitness in Industry on setting up such programs are the following:

ELEMENTS OF THE PROGRAM.

1. In the planning of a physical fitness program in industry every consideration should be given to easy participation by all employees.

2. Start with the leadership among the employees. One interested worker can start a program. The need for full-time trained personnel will be contingent on the size of the organization and its program. Many of the activities, even in a large organization, can be carried out by regular employees. A coach or manager selected from employees will tend towards smoother operation of a team because of the fact that he is working with his players and knows their problems better than an outside coach or instructor. Activity leaders and personnel for committees wherever available should come from the employees.

3. Facilities should be easily accessible to employees. Space may be available within the plant—corridors, open floors, etc.—or nearby in vacant buildings, club houses, athletic fields, etc. Community facilities may be utilized—physical education and athletic facilities of the public schools, public play grounds, swimming pools, recreation buildings, athletic fields, tennis courts, golf courses, etc. Space and equipment of private organizations can be used, such as the Y.M.C.A., the Y.W.C.A., the Y.M. & W.H.A., the C.Y.O. settlement houses, churches, labor unions, etc.; commercial bowling alleys, swimming pools, health clubs, etc.

4. There is no standard program suited to all industries. Call together a group of interested employees. Get a rapid picture of need. Start with a few activities that you know are sure fire. There are plenty to select from: archery, badminton, baseball, basketball, bicycle riding, boxing, bowling, calisthenics, camping, canoeing, fencing, football, golf, handball, gymnastics, horseback riding, horseshoe pitching, ice hockey, ice skating, obstacle races, paddle tennis, roller skating, rowing, skiing, softball, soccer, squash, swimming, tennis, track and field athletics, weight lifting, wrestling, etc. Form a physical fitness committee representative of labor and management. Find out what is being done in the industry and the community and what needs to be done. Develop a plan for the progressive meeting of the needs.

5. Plans to share and exchange sports equipment and supplies vary. They are wholly supplied by management in some instances; in others, by employees; sometimes, by employees and management jointly. Frequently they are supplied by public and private agencies of the community.

6. The practice of financing the program of physical fitness in industry also varies considerably. In some instances management bears most of the burden; in others, the cost is borne by the employee; in still others, by a combination of the two. It is a common practice to finance the project through profits from vending machines, cafeterias, dances, theatricals, concerts, and different sporting events. Wherever possible the program should be made to finance itself.

7. The success of the program depends much on the way it is promoted. Give the program prestige. Use should be made of the press, radio, movies, bulletin boards, posters, public-address systems in the plant, newspapers, etc.

8. Help can be obtained from almost every community. Locate the assistance the community can offer. Use it to help you organize, conduct leadership training, obtain equipment and facility help, etc.

9. Almost any time, in fact all the time, is appropriate for practicing physical fitness. In many plants rest periods and lunch hours are staggered so that all workers will have an opportunity to use space and equipment for physical fitness activities. The lift that workers get out of these periods pays dividends on the production line.

Private, community, and commercial facilities can all be enlisted in the physical fitness program. Virtually every section has everything necessary for the program, especially for the months permitting activity out of doors.

GUIDE FOR EMPLOYEES. For distribution by employers to their employees the Committee on Physical Fitness of the Federal Security Agency has prepared a booklet which is designed to guide the individual worker in securing and maintaining physical fitness. This booklet discusses various sports, such as baseball, bowling, swimming, canoeing, hockey, basketball, archery, volley ball, tennis, boxing, etc.; and contains hints on food, rest, and relaxation. Copies of the booklet can be obtained at the cost price of 5c. a copy from Jacobs Press, Clinton, S. C.

Among the agencies which are able to supply additional information on various aspects of physical fitness are the following:

SUBJECT	AGENCY
Physical Fitness:	The Committee on Physical Fitness, Federal Security Agency, Washington, D. C.
Public Health:	United States Public Health Service, Federal Security Agency, Bethesda, Md.
Nutrition:	Food Distribution Administration, Department of Agriculture, Independence Ave., 12th & 14th Sts., SW., Washington, D. C.
Housing:	United States Public Housing Authirty, Longfellow Bldg., Connecticut Avenue NW., Washington, D. C.
Recreation:	Office of Community War Services, Federal Security Agency, Washington, D. C.
Recreation in Industry:	Industrial Recreation Association, 1 North LaSalle St., Chicago.
Physical Fitness Tests:	Amateur Athletic Union of the United States, Woolworth Bldg., 233 Broadway, New York.
General Recreation:	National Recreation Association, 315 Fourth Ave., New York.
Athletic Sports:	The Athletic Institute, Sherman Hotel, Chicago.
Baseball for Juniors	The American Legion, Indianapolis, Ind.
Professional Leadership:	American Association for Health, Physical Education and Recreation, 1201 16th St. NW., Washington, D. C.
Health:	Institute of Life Insurance, 60 East 42nd St., New York.
Medical:	American Medical Association, Chicago.

Many textile manufacturers have long been aware that physical fitness pays dividends in production safety, team spirit, and good fellowship. Because of this awareness, they have aided their employees in keeping physically fit by encouraging various forms of recreation and sports.

Aptitude TESTS Aid IN PLACING BEGINNERS ON THE RIGHT JOB

HIGHLIGHTS: Special Techniques Developed by War Manpower Commission for Textile Industry—Tests Can Be Given in U. S. Employment Offices or in the Mill—Show Native Ability of Applicants to Become Proficient in Spinning, Weaving, and Other Occupations.

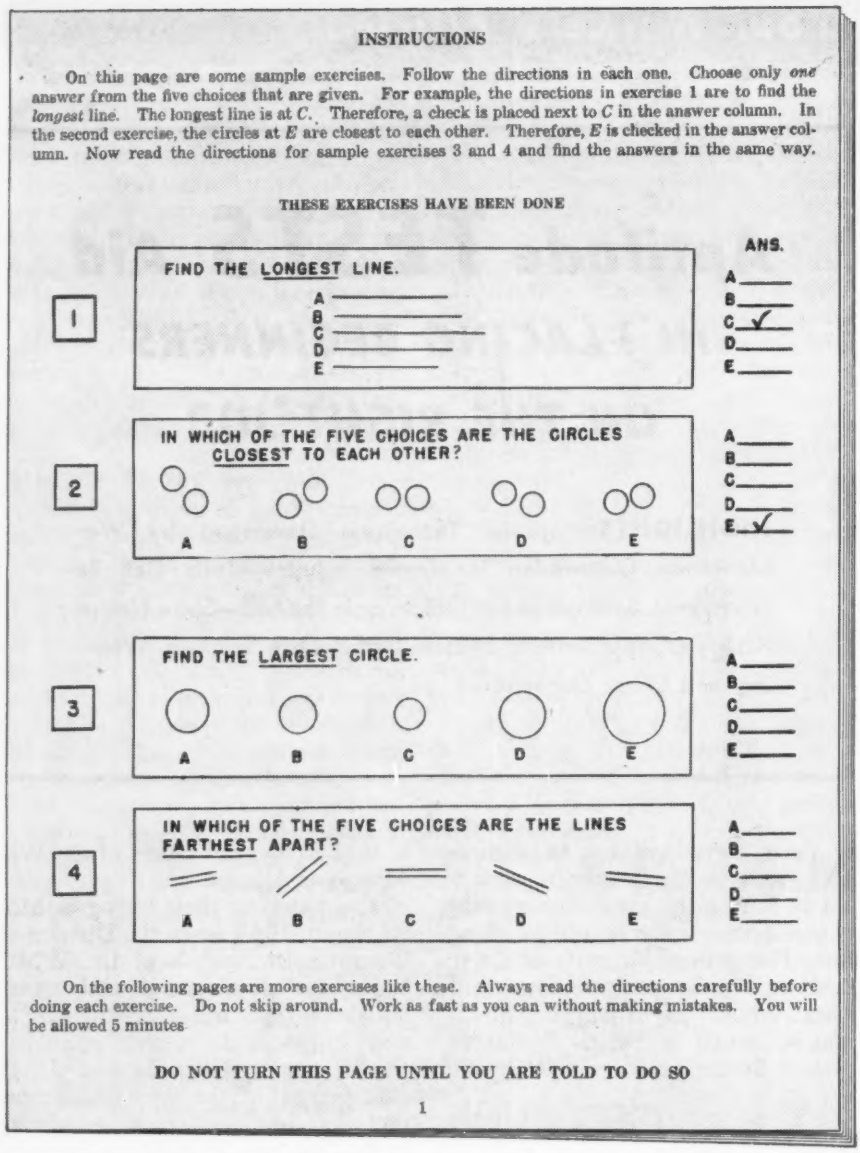
MORE EXTENSIVE USE of aptitude tests by the textile industry to aid in solving the manpower problem is now definitely foreseen in Washington. This comes as a result of the recent agreement under which such tests, subject to certain conditions, may be carried on directly by the employers themselves, as well as by the U. S. Employment offices of the War Manpower Commission.

Fig. 1. Typical test for determining finger dexterity of applicant or worker.

The history of these tests goes back to August, 1943, when the Division of Occupational Analysis of the WMC began the development and standardization of various techniques to assist in proper classification and selection of applicants in the local U. S. Employment offices. Two of the most useful techniques which are being worked out are: (1) the aptitude-test battery for placing beginners, and (2) the trade tests for workers with some trade skill.

The aptitude-test battery is designed to aid interviewers in selecting from applicants in the local offices the most satisfactory beginners to be referred for training on a job or in a training course, or for use, under certain conditions, by employers in allocating workers to various jobs. With the present manpower shortage throughout the textile industry, many employers argued that they wanted all the workers they could get, with the assistance of aptitude tests after the workers have started on the job. The local employment service has no authority to give aptitude tests to employees already working.

TESTING AT THE MILL. In order to make use of the tests at the mill, the employer must have proper facilities for keeping the records and WMC officials must follow up on the results. Until more complete Gov-



INSTRUCTIONS

On this page are some sample exercises. Follow the directions in each one. Choose only *one* answer from the five choices that are given. For example, the directions in exercise 1 are to find the *longest* line. The longest line is at *C*. Therefore, a check is placed next to *C* in the answer column. In the second exercise, the circles at *E* are closest to each other. Therefore, *E* is checked in the answer column. Now read the directions for sample exercises 3 and 4 and find the answers in the same way.

THESE EXERCISES HAVE BEEN DONE

ANS.

1 FIND THE LONGEST LINE. A B C D E — A B C✓ D E

2 IN WHICH OF THE FIVE CHOICES ARE THE CIRCLES CLOSEST TO EACH OTHER? A B C D E — A B C D E✓

3 FIND THE LARGEST CIRCLE. A B C D E — A B C D E

4 IN WHICH OF THE FIVE CHOICES ARE THE LINES FARTHEST APART? A B C D E — A B C D E

On the following pages are more exercises like these. Always read the directions carefully before doing each exercise. Do not skip around. Work as fast as you can without making mistakes. You will be allowed 5 minutes

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO

1

Fig. 2. Example of size and discrimination test; actual tests given depend on type of work applicant may be required to do.

ernment data have been collected, aptitude tests which are used directly by the employer must be considered as a cooperative experiment in which he shares in the experience already gained by WMC, and, in turn, gives WMC the benefit of whatever general knowledge may be gained from the tests within his own organization. Application for use of battery tests should be made to the Regional Director of WMC. Among the occupations in the textile industry for which aptitude-test batteries already have been developed are for Weaver IV, Skein Winder I, Cone Winder II, Power Sewing Machine Operator (garment), Copping-Machine Operator, Drawing-In Hand, and Mule Spinner.

The tests are a formal procedure which begin and end by the stop watch. It is not possible to reproduce actual tests, because by so doing the value of them would be lost. However, a typical test for determining finger dexterity is shown in Fig. 1, and an example of what might be required in Size and Discrimination Tests is shown in Fig. 2. Tests are adapted to the kind of work the applicant may be required to do.

DEVELOPMENT OF SPECIAL TESTS. In developing aptitude tests for a given occupation, WMC's technicians cooperate with employers and unions. Representative workers and students enrolled in training courses, homogeneous with respect to age and education, are chosen for study. The age of the subjects is usually within the range of 18 to 40, in order that best scores will not be affected by extremes of age. The subjects should have completed at least six years of schooling. Subjects should be as nearly equal as possible with respect to length of experience on a job, so that differences in work proficiency as measured by supervisors' ratings can be interpreted as individual differences in ability. As an example of the extent to which tests recommended actually tend to select the more satisfactory workers, it was found in the case of Weaver IV, that those who scored high on tests earned an average of 9% more wages hourly than those who scored low (piece rate system). It was also noted, in the case of Sewing Machine trainees, that those who were high on aptitude tests averaged 22% higher on efficiency rating forms than employees who passed low on tests.

Steps ordinarily followed in conducting an aptitude study are as follows:

1. The job is observed by a job analyst of WMC and a detailed description is written.
2. Production records or ratings for each employee are obtained from the company and analyzed to determine their adequacy as measures of proficiency or success in the job. The index or measure of proficiency which is established is called the "Criterion."
3. When a Criterion has been established, a number of tests which appear to be suitable for measuring abilities required to perform the job are selected for use.
4. These tests are then given to the group of employees for whom the measure of ability on the job is available. Testing is done at the company's plant. Employees are tested individually on apparatus tests and in groups on written tests.
5. Tests which are found to be most efficient in indicating the known ability of the employees—tests on which the high scores are made by superior employees and low scores by less satisfactory employees—are chosen. The best weighted combination of such tests constitutes the aptitude-test battery which is recommended for future use.

These battery tests are available for use in employment offices throughout the country. At the company's request, the tests are given to applicants, and those whose test scores meet the standards required are referred to the employer, who may then select the workers he wants. Otherwise, tests may be conducted, as previously explained, by the employer himself.

TRADE TESTS FOR SKILLED WORKERS. Trade tests are also given in the local WMC employment offices to clear up any doubt that the employment interviewer may have as to the skilled worker's qualifications. An applicant may claim to be a loomfixer, a weaver, or a spinner. The trade tests serve as a quick check on his trade knowledge. He may overestimate or underestimate

his abilities; he may be vague about places where he has worked; he may be an older worker coming back, etc.

These tests are prepared as lists of questions alone; as lists of questions which pertain to pictures such as a photograph of an operator at a machine; or they may relate to specific job duties. There are about 15 or 20 questions as a part of the interview.

Recently WMC has started work on more comprehensive tests, known as Proficiency Utilization Trade Tests. These tests are usually written and are made up of as many as 50 or 60 items. They apply to jobs with a number of duties and are useful in deciding what men should receive promotions. They are not in general use yet, but will be prepared for each mill requesting.

Absenteeism and Waste Cut by LABOR-MANAGEMENT COMMITTEE

HIGHLIGHTS: Nashua Was First Textile Mill in New Hampshire to Set Up Committee—Suggestion Plan Brings 6.6 Suggestions per 100 Workers—Bulletin Boards Effectively Used.

Among the industry's most effective Labor Management Committees is that of Nashua Mfg. Co., Nashua, N. H. The following article was especially prepared for TEXTILE WORLD by the men who have been acting as secretaries of the committee.

LAST MONTH the Labor-Management Committee at Nashua Mfg. Co., Nashua, N. H., was two years old. The Nashua company was the first textile mill in New Hampshire to respond to Donald Nelson's appeal, back in March, 1942. The War Production Board head at that time urged that manufacturing firms devise by joint committees ways and methods for increasing production, and WPB issued helpful guides to that end. In that same month Nashua organized its "War Production Drive Labor-Management Committee," with six persons representing management and six representing labor upon its roster.

That committee has been operating successfully ever since. New members are added and older members dropped at specified times in order that both Labor and Management employees can profit by serving on it. This rotation of members also helps to bring in new ideas. Special bulletin boards were erected at once in every department of the mills and notices posted thereon informing all employees of the existence and purpose of this committee. These boards are now used for production posters and other production stimulating material.

ABSENTEEISM. The first thing the committee did was to roll up its sleeves and tackle the most difficult problem of all, and the one hurting production most—absenteeism. Large display boards were erected near the entrance gates showing the weekly attendance and comparing it with attendance for the previous week. The attention-getting quality of these displays is shown in the accompanying illustration. Each week lost-time records are prepared showing percentage of absenteeism by departments. This permits department heads to check their percentage of lost time with that of other departments, to know the trend and

Nashua Mfg. Co's. committee: (l. to r.) Harold Reynolds, Frank Nute, Emery Noel, R. W. Tweedy, Vincent Rigg, J. W. Logan, Melvina Booth, Frank Phelan, Alphonse Smilikis, Yvonne Emalavitch, E. Sweetser, Frank Dichard, Horace Slate, Albert Dumais, E. S. Moore, and W. Wilkowski.

Nursing staff at Nashua, four from the company's infirmaries and one visiting nurse. The latter, shown at right, has done much to reduce absenteeism.

their relative positions, and to act accordingly.

The committee sponsored meetings at which members of the Armed Forces were present to address groups of employees on the importance of working steadily. Motion pictures were an added feature of these programs. Last June an entire day, covering all three shifts and called "Army-Navy Visitation Day," was devoted to ceremonies associated with the unveiling of honor rolls at both the Nashua and Jackson plants. Outdoor meetings on the lawns around the plants were featured by music, singing of "America," invocation, and introduction of the visiting military party and of representatives of labor and management. Following this start the various service men related stories of their experiences on foreign fronts.

Also focussed on maintaining a high attendance record is the work of a visiting nurse who calls at the homes of employees not reporting for work. Her service has brought good results, and contributed greatly in the reduction of absenteeism.

Fewer hours lost from work through accidents is an important factor in maintaining and increasing production. With this thought in mind, a sub-committee was named to work with the mill's existing safety board, which had already established an enviable record. A sub-committee has been named to work on waste problems.

SUGGESTION SYSTEM: In order that all employees might have a part in contributing to increased production, the Labor-Management Committee at Nashua decided that a Suggestion Plan would be worth while. Considerable study was devoted to procedure before the plan was put into effect. Attractive leaflets were prepared and distributed to all employees explaining the system in detail. The suggestion system covers matters related to the following subjects:

Attendance record board at entry which keeps the current record constantly before employees.

1. Increase in production.
2. Improvement in quality.
3. Better handling, packing and shipping methods.
4. Improvement in tools and equipment.
5. Reduction in costs.
6. Prevention of accidents and fires.
7. Reduction in waste.

Response to the Suggestion System has been strikingly good with an average of 6.6 suggestions per 100 employees received during the first three months of operation. Cash awards were made on 24.4% of the suggestions acted upon by the committee during this period. Each member of the committee supplied with a set of the rules and regulations covering acceptance and pay for suggestions, and meetings are held each week with the mill superintendent acting as chairman to help the committee with the benefit of his experience. Besides contributing valuable ideas to increase production, the plan has proved of educational value in getting labor and management together in the investigation of suggestions and discussion of ways to increase production. Often the necessary investigation takes the workers and supervisors into departments other than their own, giving them an opportunity to study the different processes and to learn the problems of others.

FOURTH WAR LOAN: The Labor-Management Committee sponsored the fourth war loan drive which was an outstanding success. The quota of $200,000 was the largest for any industrial concern in New Hampshire, but subscriptions exceeded this sum by more than $12,000. In fact, Nashua Mfg. Co. employees have had the Minute Man "T" flag since September, 1942. For the last fiscal year employees have purchased $966,721 worth of bonds by payroll deduction and $97,000 worth on a cash basis. In the Third War Loan Drive last year, Nashua oversubscribed its $133,765 quota by $41,000.

In summing up the results of the many activities of Nashua's Labor-Management Committee, it is said by those closely associated with it that it has developed a better understanding and a greater sympathy of the problems that both labor and management have to face, both now and after the war. That the results have satisfied both sides is proven by the fact that the committee is still functioning smoothly and efficiently.

WOMEN LOOMFIXERS

Relieve Labor Shortage

HIGHLIGHTS: Training Program Essential — Work Carefully Selected — Men Promoted to Head Fixers — Cooperation of Other Workers Needed.

By ARTHUR C. WAYMAN

TEXTILE MILLS have already found that women can be used for work which before the war was done solely by men. This does not always mean that they take over men's jobs and perform them exactly as before. Rather, women have succeeded in replacing men in proportion to the thought given to their jobs and to the training they received. For example, the designing of simple aids proper work layouts, and giving proper instruction have, in one plant, enabled women to handle 500-lb. bales of staple.

Women are currently being used as slasher tenders, oilers, loom cleaners, and even fixers. It had been strongly felt, by some, that women could not be used as loomfixers and, generally, they cannot be used exactly as the men they replace. However, they can multiply the number of looms that a skilled fixer can attend and thus can solve the fixer shortage problem. To illustrate, it is possible for men fixers (then called "head fixers") to be responsible for 120 looms, whereas previously they could handle only 40. This can be done by assigning each man two properly trained women fixers. These women do such jobs as setting feelers, adjusting the pick, aligning reed and boxes, adjusting warp tension, leveling harness, adjusting shuttle check, testing shuttle tension, and many other jobs. This system seems to be best suited to plants that employ preventive maintenance; that is, the women are expected to check various items at stated times before anything goes wrong, rather than to wait for something to break down. The "head fixers" are used for the harder jobs or for those requiring skill or knowledge beyond the women fixers.

The ratio of one male to two female fixers is just one that might be employed. In a plant that lacks only one or two fixers, the deficiency might be remedied by relieving the fixers of certain jobs so that they can each take care of more looms. The fixers might be relieved of virtually all attention to shuttles by setting up a shuttle shop composed of women. Or the men could similarly be relieved of lining binders, preparing pickers, covering take-up rolls, and similar tasks.

CARE IN SELECTION. Second only in importance to the training of women for loomfixing jobs is the selection of ones who most likely will succeed. During the war many women are proud to be offered an opportunity to do "men's work." Only those interested should be accepted. An excellent background for trainees, whether women or men, is previous experience at weaving so, if possible, the prospective fixers should be selected from among weavers.

After selecting the trainees, they should be instructed by someone who can devote the necessary time and who conforms in his teaching methods to those prescribed in the well-known T. W. I. Job Instructor Training Program. It is a waste of time merely to assign one or more women to a fixer who already has a full-time job, and to expect him to train them. He cannot do so and keep up his job.

Trainees should first become thoroughly familiar with the proper terms for the various loom parts. They also should know the correct names, uses,

(*Continued on page 120*)

WARTIME MAINTENANCE OF MOTOR-STARTERS

HIGHLIGHTS: Chart Shows Cause and Remedy for Various Troubles—Worn or Pitted Contacts Should Be Renewed Promptly—Contact Pressure Should Be Checked Frequently—Defective Coils Should Be Replaced With New Ones and Performance of Unit Tested.

By J. Z. LINSENMEYER* and L. E. MARKLE**

Westinghouse Electric & Mfg. Co.

MAINTENANCE MEN correct the troubles of motor starters in much the same manner that doctors correct our personal ills. Some cases are trivial and are made right in a short time and with little expense. Others are serious. Some are incurable. Fortunately, we can buy renewal parts for motor starters and we can replace inoperative starters with entirely new ones. In normal times new equipment can readily be obtained, but with the war demands of today there may be a very appreciable delay in obtaining almost any type of electrical equipment. As a result, an unforseen failure may cause a serious tie-up in production. A well-organized maintenance program offers the best safeguard against such failures.

Satisfactory maintenance requires competent men and a thorough and adequate plan of handling the inspection and repair work. Good inspection and prompt repairs will avoid high maintenance costs; complete replacements will often be avoided; lost time will be kept at a minimum.

Preventive maintenance begins with the proper selection of the motor starter. If it is not suitable for the installation or if it has insufficient capacity, maintenance troubles are inevitable. The initial inspection of a new installation should be thorough and operation observed at load conditions before final acceptance is made. A time schedule for routine inspection should be established to meet the service requirements. As motors and their starters are always associated, a combined schedule can be worked out for inspection of both. The accompanying check chart will aid in locating and remedying motor-starter trouble.

DO NOT LUBRICATE BEARINGS. Oil and grease should never be applied to the bearings of a contactor or relay. Experience has indicated that oil or grease will cause dirt to accumulate and eventually result in a sticky, gummy accumulation that causes sluggish action. The bearings are designed with these requirements in mind and no lubrication is required on any part.

Bearing parts should permit contactors or relays to operate freely and without apparent friction. If parts are out of alignment and excessive friction does exist, it should be eliminated. Sluggish action will cause electrical troubles. Monthly inspections for severe service, and semi-annual inspections for average service will do much to prevent bearing and friction troubles.

No bearings are required when the moving parts of a contactor or relay are relatively light and the magnetic forces can be made strong enough to lift the movable parts vertically to close the contacts. This is an ideal design as far as bearings are concerned. However, the moving parts must be guided within the solenoid, and non-magnetic guides must be used to prevent magnetic sticking.

REPLACE WORN CONTACTS. Although contacts are generally thought to be

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subjected primarily to electrical duty, the mechanical duty is equally important. Endurance tests are made with no current through the contacts to observe how well they withstand the pounding, rolling, and sliding or scrubbing action that occurs every time the contacts close. Contactor designs often provide a rolling action of the contacts so that the circuit is closed and opened on the contact tips, instead of on the closed contact position.

When high currents that are difficult to interrupt are expected, powerful arc-rupturing structures are supplied to force the arc off the contacts and quickly extinguish it. These arc-rupturing structures are called "arc boxes" or "blow-out structures." When in operating position, they completely surround the contacts and must always be in correct position to rupture the arcs effectively. They are easily removed for inspection or replacement of contacts. They must be returned to proper position after inspection so that the arc will be properly broken and the contacts will not be unnecessarily worn and burned.

Contacts should be renewed when badly burned or pitted and when worn thin (Fig. 1). They should be clean, but need not be smooth. In fact, a clean contact with a roughened surface comparable to coarse sandpaper is satisfactory and provides as good, or better, contact surface than perfectly smooth surfaces. If a contact surface is pitted or burned, but not worn thin, it can be cleaned and used again.

The method of cleaning is important. Coarse and crude filing wastes material and generally deforms the original contact shape. The contact surfaces then have high spots and point contacts that are likely to overheat. Instead of filing, clean with sandpaper or a buffing wheel. A fine file is permissible if the contact shape is maintained. Emery paper should never be used, as particles may adhere to the surface and cause unnecessary wear.

Silver contacts seldom require cleaning. They may look black and dirty because of the silver oxide; however, as the oxide is a conductor, cleaning is not often necessary.

When contacts are replaced, the surface against which they are bolted should be thoroughly cleaned. This is usually a current-carrying joint and a clean contact bolted to a dirty surface cannot give best results. Both surfaces should be clean. Any traces of copper oxide should be removed.

The screws or bolts that hold contacts in place must be tight at all times. A loose contact surface offers high

CHECK CHART FOR MOTOR-STARTER TROUBLE

Trouble	Cause	What To Do
Contactor or relay does not close	No supply voltage	Check fuses and disconnect switch
	Low voltage	Check power supply. Wire size may be too small
	Open circuited coil	Replace
	Push button contacts not making	Clean and replace if badly worn
	Interlock or relay contact not making	Adjust and replace if badly worn
	Loose connection or broken wire	Check circuit with "flash light" (turn off power first!)
	Overload relay contact open	Reset
Contactor or relay does not open	Push button not connected correctly	Check connections with wiring diagram
	Shim in magnetic circuit* worn allowing residual magnetism to hold armature closed	Replace
	Interlock or relay contact not opening circuit	Adjust contact travel
	"Sneak" circuit	Check control wiring for insulation failure
	Contacts weld shut	See "Contacts Weld Shut"
Contacts weld shut	Insufficient contact spring pressure causing contacts to burn and draw arc on closing	Adjust, increasing pressure. Replace if necessary
	Rough contact surface causing current to be carried by too small an area	Smooth surface and replace if badly worn
Arc lingers across contacts	If blow out is serious, it may be shorted If blow out is shunt, it may be open circuited	Look at wiring diagram and see kind of blow out. Check to see if circuit through blow out is all right
	If used, arc box might be left off or not in correct place	See that arc box is on contactor as it should be
	If no blow out used, note travel of contacts	Increasing travel of contacts will increase rupturing capacity
Noisy A-C Magnet	Improper seating of the armature	Adjust
	Broken shading coil	Replace
Excessive corrosion of contacts	Chattering of contacts as a result of vibrations outside of the control cabinet	Check control pressure and replace spring if it does not give rated pressure. If this does not help, move control, so that vibrations are decreased
	High contact resistance because of insufficient contact spring pressure	Replace contact spring
Abnormally short coil life	High voltage	Check supply voltage and rating of controller
	Gap in magnetic circuit†	Check travel of armature Adjust so that magnetic circuit is completed
	Too high an ambient temperature	Check rating of contact. Get coil of higher ambient rating from manufacturer if necessary
Panel and apparatus burned by heat from starting resistor.	Motor being started too frequently	Use resistor of higher rating

*D-C only †A-C only

resistance and develops heat. This causes increased oxidation of the copper contacts. As copper oxide is not a good electrical conductor, this oxidation creates still more resistance and heat. This action is cumulative and eventually causes contacts to melt and deterioration of the entire contact assembly.

When contacts open and close, the rolling and rubbing action combined with the slight burning of a normal arc combine to keep the contacts bright and clean. If the contacts operate infrequently, the cleaning action does not occur and a covering of copper oxide develops. The heating oxidation cycle may start; and eventually overheating may develop, even though the current or load is normal or less. For such conditions, silver contacts will probably give better service, as silver oxide is a good conductor and heating does not develop. Silver contacts may also provide some relief in cases where a small overload condition is troublesome. They must, however, be used with some caution, because they will not correct overheating caused by loose connections. As silver has a lower melting temperature than copper, silver contacts are more prone to become soft and "weld" or "freeze" together when subjected to high arcing temperatures.

Other special alloy materials are available that give reasonably good service under certain unusual or specific conditions. Contacts made of special materials should be used only on advice of the manufacturer of the device. Usually they are rated at lower current-carrying capacities than similar contacts of copper or silver.

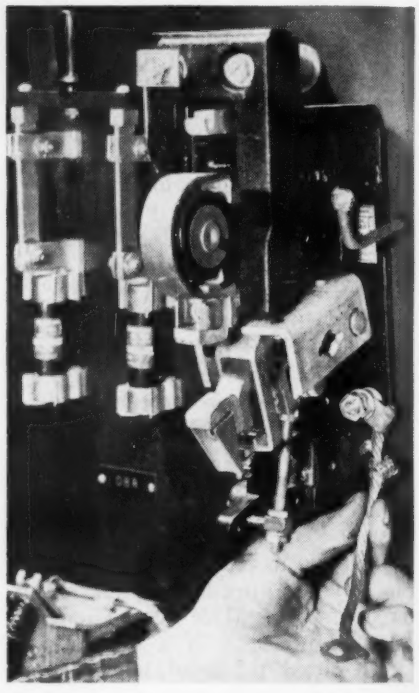
CONTACT PRESSURE. The closed pressure of contacts is an important factor in their ability to carry current. A small contact with suitable contact pressure will carry more current than a larger one with little or no pressure. Renewal of thin contacts is required, as with wear they lose their contact pressure. It is important to keep the contact springs in good condition. Replace them if they have been damaged or have lost temper through exposure to high arcing temperatures. (Fig. 3.)

A monthly inspection of contacts for pressure, available life, surface condition, temperature, and tightness should suffice for normal conditions. For severe operating conditions, a weekly inspection may be advisable.

RENEW FRAYED SHUNTS. Shunts are generally flexible bands of woven copper strands that carry current from the movable contacts to a stationary stud. If the shunt is unduly

Fig. 1. Contacts worn through by long use or badly burned contacts must be renewed. Surfaces against which contacts are bolted should be cleaned. Clean copper contacts, though slightly roughened, are entirely satisfactory. Silver contacts, though black in appearance, need not be cleaned. Be sure contacts are tight at all times.

Fig. 2. Broken strands of shunts cause the remaining good strands to carry more current and eventually overload the shunt and cause it to overheat. Damaged shunts should be renewed.



bent, its strands break and cause additional loading of the remaining strands.

Shunts with broken strands should be renewed to prevent overheating. The terminal connections of the shunt should be tight. Shunt ends are frequently silver plated or covered with special finishes to insure a clean contact surface of good current-carrying ability.

OPERATE COILS AT RATED VOLTAGE. After coils are wound, they are treated with insulating varnish to improve their dielectric strength and make them a solid mass. This makes the coil less susceptible to mechanical injury, eliminates air pockets within the winding, and enables the coil to radiate heat more readily than an untreated coil. A.C. coils are designed to withstand 10% over-voltage and operate the devices at 85% of normal voltage. D.C. coils will withstand 10% over-voltage and operate devices at 80% of normal voltage.

Over-voltage operates a contactor or relay with more mechanical force and tends to shorten the mechanical life if allowed to prevail. Over-voltage also shortens the life of a coil because it operates at a higher temperature. Most of the southern mills are laid out for 550 volts, but actually in the majority of these mills the voltage is found to be closer to 600 volts, and it has proved advisable to specify 600-volt control coils to meet this over-voltage condition. Low voltage will cause sluggish action. The contact tips may touch, but may not be forced completely closed against the contact spring pressure. Under such conditions the contact tips will most certainly overheat and probably "weld" together. Contacts must always seal closed.

On the a.c. service, the coil current is much higher while the contactor is closing than after it is closed. A.C. coils are not designed to stand the open-gap or closing current continuously. If any mechanical interference prevents complete closure of the magnetic air-gap of an a.c. device, its coil will soon be overheated.

Open-circuited coils are easily detected because they cannot operate the device. A voltmeter connected across the coil terminal would show zero voltage. A coil with some turns short circuited might operate, but it would soon overheat and burn out. Since most designs permit quick replacement of parts, a questionable coil could be replaced by a new one and the operation of the unit then checked for satisfactory performance. (Fig. 4.)

REDUCING VIBRATION AND NOISE. When a magnetic contactor opens, the movable part strikes the stationary stop rather forcibly. There is a "dead," or center-of-percussion, point at which the effect of the blow is nullified. If the striking occurs at some other point,

the device is subjected to mechanical vibrations and strains that reduce its mechanical life. If the design of a contactor properly locates the armature stop with respect to the center-of-percussion point, undesirable shock and vibration of parts will be reduced and the mechanical life of the entire device will be increased.

D.c. contactors always operate quietly when closed. A.c. contactors may be noisy. The laminated magnetic structure, necessary on a.c. designs, must be held tightly together by screws, rivets, or other means. If the laminations become loose, the assembly will be noisy. Noise will also result if the movable and stationary pole pieces do not fit well together when the device is closed. Dirt or rust may prevent proper closure of these surfaces and cause objectionable noise. To prevent rust on these fitted surfaces during shipment, some grease is applied. The excess grease should be removed when placed in service to eliminate a "sticking" or sealing effect when the surfaces are first closed against each other.

The most important device in reducing noise of an a.c. device is the shading coil usually imbedded in a part of the laminated magnetic structure. This coil is often a single turn of wire or strap, and if broken, the noise will be most objectionable. If contactor is noisy, look first for a broken shading coil.

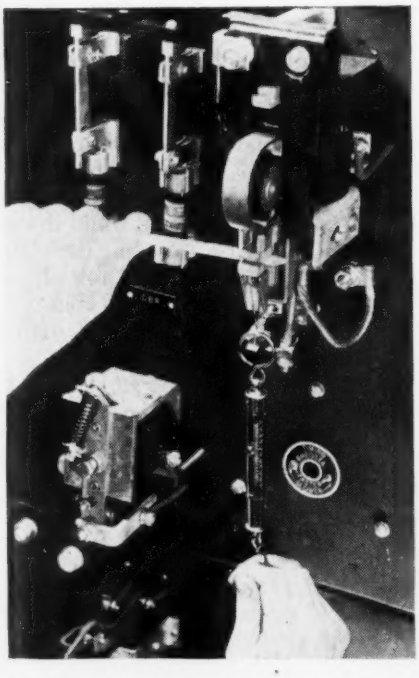


Fig. 3. Contact pressures are very important and should be checked. Weak springs and overworn, thin contacts will reduce contact pressures.

Fig. 4. Defective coils must be replaced. Designs are usually made so that coils may be changed easily and without much delay.

CONTROL FOR SEVERE SERVICE. For high-voltage installations, in explosive atmospheres and areas of corrosive nature, such as acid fumes, the entire equipment is often completely immersed in oil. The oil should be maintained at proper level and should be kept clean, especially when used for insulating purposes. A monthly inspection of oil-immersed equipment is adequate unless service is so severe that the oil deteriorates rapidly.

"Explosion-tested" starters are intended for use in explosive atmospheres and do not require oil. These starters are built to specifications of the Underwriters' Laboratories. The enclosing cases are built to withstand high pressures that occur within the case if internal explosions should occur and to prevent flames escaping into the explosive atmosphere. If dismantled, the parts of an explosion-tested starter must be carefully assembled to be sure that all bolts, nuts, and joints are tight. Operation in the explosive area, unless properly and completely assembled, is not permitted.

Since many parts of contactors and relays are made of steel and subject to rust, these parts are always covered with a protective coating, such as zinc or cadmium plating. Copper and brass parts are often treated with a light finish to protect against oxidation and for sake of appearance. Steel cabinets are painted; small sizes often have baked finishes. Galvanized sheet is often used to give added assurance against corrosion.

RELAY OPERATION. When oil or any liquid is used in dashpots, regular inspections should be made to be sure that the dashpots are free of friction and the proper oil level is maintained. No substitution of oil or liquid used in dashpots should be made. These liquids are tested for certain characteristics, such as change in viscosity with temperature changes. A change in oil or liquid would, therefore, affect the operation of the relay.

Thermal relays are subject to ambient temperatures and should be in a room temperature equivalent to that in which the motor is located. Otherwise the relays may not operate to the best advantage. For example, a thermal-overload relay should not be in a temperature much in excess of the motor-room temperature unless proper allowance for the difference in temperature is made when the thermal heaters are selected.

CONNECTIONS. Loose connections are a frequent cause of trouble. They result in overheated parts that eventually must be replaced. Once tight does not mean they will remain tight. Periodic inspection is necessary. Changes in temperature, vibration, and carelessness are all common causes of poor connections. They should always be tight and clean. (See illustration at start of this article.)

Resistors to dissipate heat frequently fail from excessive temperatures. Overheating may be caused by insufficient ventilation, excessive current, or more continuous service than was anticipated in the design. Loose connections often cause local heating, with eventual burned connectors. Grid or cast types sometimes break in handling or with frequent and sudden overheating and cooling.

KEEP STARTERS CLEAN AND DRY. Moisture, dirt, and dust are constant sources of trouble, as they reduce insulation values of insulated wires and cables. They constitute a leakage path across which breakdowns occur between points of different potentials that would never occur on clean and dry surfaces. Routine maintenance should remove dirt and dust by blowing dry compressed air, and wiping or washing with suitable cleansing fluid. Compressed air under too much pressure may drive metallic dust and dirt into insulation or lodge particles between stators and rotors of motors or in moving parts of contactors and relays.

Moisture may occur from condensation, humid atmospheres, spray, or overhead dripping. Heaters are sometimes placed in enclosures to keep the interiors dry. They are generally

(Continued on page 180)

READY RECKONERS Speed Yarn Calculations

HIGHLIGHTS: Tables for Determining Yardage of Various Counts of Cotton and Worsted Yarns—Simplified Method for Denier Determination.

By ERNEST WHITWORTH

This is the third in a series of articles prepared by this author on rapid calculations. Ernest Whitworth is the author of the book "Practical Cotton Calculations," which, unfortunately, is now out of print. At one time he taught designing and cloth analysis in a textile school, was then designer in a worsted mill, and later entered the cost-accounting and consultation field with a well-known firm of textile engineers. For some years he has been connected with one of the largest fancy goods mills in the country, where he has had experience with production and cost problems, inventories, job analyses, time studies, rate setting, and similar work. In this and subsequent articles, Mr. Whitworth will present numerous short-cut methods which are designed to save time in making textile calculations. He has offered in this series to cover any specific calculations requested by our readers. Such requests should be addressed to Technical Editor, TEXTILE WORLD, 330 West 42nd Street, New York 18, N. Y.

BASIC READY RECKONERS are time savers for fabric designers, cost-analysis specialists in the textile field, and others who have occasion to make frequent yarn calculations. Among the calculations which must be performed frequently are those for determining the yards per pound of various counts of yarn. Operating executives may, by utilizing the basic ready reckoners as described in the first article of this series appearing in the January issue of TEXTILE WORLD, and given in Tables I, II, and III, prepare their own tables covering count ranges which they use most frequently.

Table I. Basic ready reckoner for determining yards per pound of any count of yarn as numbered by the principal systems.

System	Dram	Cut	Metric	Worsted	Cotton	Typp	Run
Used principally for	Woolen	Woolen, linen, silk noil		Worsted	Cotton, spun silk	Suggested universal system	Woolen
Yards per hank	256	300	496	560	840	1,000	1,600
Counts	Yards of Yarn per Pound						
1	256	300	496	560	840	1,000	1,600
2	512	600	992	1,120	1,680	2,000	3,200
3	768	900	1,488	1,680	2,520	3,000	4,800
4	1,024	1,200	1,984	2,240	3,360	4,000	6,400
5	1,280	1,500	2,480	2,800	4,200	5,000	8,000
6	1,536	1,800	2,976	3,360	5,040	6,000	9,600
7	1,792	2,100	3,472	3,920	5,880	7,000	11,200
8	2,048	2,400	3,968	4,480	6,720	8,000	12,800
9	2,304	2,700	4,464	5,040	7,560	9,000	14,400

An example of how such tables may be prepared will be given.

DEVELOPING WORSTED YARDAGE TABLE. Assume that a fabric designer has frequent need for determining the number of yards in a pound of worsted yarn for various yarn counts. The use of ready reckoners, as given in the January issue, would require considerable calculation work. Hence, the designer first determines the count range over which yards per pound of worsted yarn are required in his normal work. Consider that this range, for example, extends from 1s to 99s, worsted counts. Next, Table VII is developed to cover this range.

To simplify development of Table VII, and others, Table I is again reproduced.

Vertical figures at the left of Table VII indicate worsted yarn counts, each running in units of 10. The top horizontal line runs from 0 to 9. Referring to Table I under the column headed "Worsted," it is found that 560 yd. of yarn are in a 1s count yarn. This figure is placed on the first horizontal line of Table VII under 1. Reading down the "Worsted" column of Table I, all figures are transferred to Table VII, but are placed under the representative horizontal figures on the first line.

The first figure in the second line of Table VII represents the number of yards of yarn in 10s yarn. This figure is obtained as explained in the first article on ready reckoners, and is found as follows:

Count	*Yards*
1	560
9	5,040
10	5,600

All the other figures in Table VII are obtained accordingly.

Use of this table is very simple. If, for example, it is necessary to find the yards in a pound of 36s worsted yarn, refer to Table VII. Follow along the third line which indicates lengths of yarn for 30s to 39s counts. The num-

Table VII. Yards of worsted yarn per pound equivalent to worsted yarn numbers*

Single yarn number	0	1	2	3	4	5	6	7	8	9
1 to 9	.....	560	1,120	1,680	2,240	2,800	3,360	3,920	4,480	5,040
10 to 19	5,600	6,160	6,720	7,280	7,840	8,400	8,960	9,520	10,080	10,640
20 to 29	11,200	11,760	12,320	12,880	13,440	14,000	14,560	15,120	15,680	16,240
30 to 39	16,800	17,360	17,920	18,480	19,040	19,600	20,160	20,720	21,280	21,840
40 to 49	22,400	22,960	23,520	24,080	24,640	25,200	25,760	26,320	26,880	27,440
50 to 59	28,000	28,560	29,120	29,680	30,240	30,800	31,360	31,920	32,480	33,040
60 to 69	33,600	34,160	34,720	35,280	35,840	36,400	36,960	37,520	38,080	38,640
70 to 79	39,200	39,760	40,320	40,880	41,440	42,000	42,560	43,120	43,680	44,240
80 to 89	44,800	45,360	45,920	46,480	47,040	47,600	48,160	48,720	49,280	49,840
90 to 99	50,400	50,960	51,520	52,080	52,640	53,200	53,760	54,320	54,880	55,440

*For yards per pound of ply yarn divide the yards for the single yarns by the number of the ply.

Table VIII. Yards of cotton yarn per pound equivalent to cotton yarn numbers*

Single yarn number	0	1	2	3	4	5	6	7	8	9
1 to 9	.....	840	1,680	2,520	3,360	4,200	5,040	5,880	6,720	7,560
10 to 19	8,400	9,240	10,080	10,920	11,760	12,600	13,440	14,280	15,120	15,960
20 to 29	16,800	17,640	18,480	19,320	20,160	21,000	21,840	22,680	23,520	24,360
30 to 39	25,200	26,040	26,880	27,720	28,560	29,400	30,240	31,080	31,920	32,760
40 to 49	33,600	34,440	35,280	36,120	36,960	37,800	38,640	39,480	40,320	41,160
50 to 59	42,000	42,840	43,680	44,520	45,360	46,200	47,040	47,880	48,720	49,560
60 to 69	50,400	51,240	52,080	52,920	53,760	54,600	55,440	56,280	57,120	57,960
70 to 79	58,800	59,640	60,480	61,320	62,160	63,000	63,840	64,680	65,520	66,360
80 to 89	67,200	68,040	68,880	69,720	70,560	71,400	72,240	73,080	73,920	74,760
90 to 99	75,600	76,440	77,280	78,120	78,960	79,800	80,640	81,480	82,320	83,160
100 to 109	84,000	84,840	85,680	86,520	87,360	88,200	89,040	89,880	90,720	91,560
110 to 120	92,400	93,240	94,080	94,920	95,760	96,600	97,440	98,280	99,120	99,960

*For yards per pound of ply yarn divide the yards for the single yarn by the number of the ply.

ber under the column marked 6 is found to be 20,160, the yardage in one pound of 36s yarn.

TABLE FOR YARDAGE OF COTTON YARN. Operating executives concerned with the yardage in cotton yarn of various counts may likewise prepare tables. A typical set for yardage has been developed, as shown in Table VII. The table is developed in exactly the same manner as that formerly created for worsted yarns. The only difference, however, is that instead of using 560 yd. as a basis, 840 yd. is used. Hence, for 1s cotton count, 840 yd. of yarn equal 1 lb. For 2s yarn there are 1,680 yd., for 3s there are 2,520 yd., etc.

Use of this table is the same as in Table VII.

DENIER DETERMINATION. Frequently it is necessary to determine yarn denier using skeins of varying length. While a length of 120 yd. is frequently used in denier determination, other lengths may, under certain conditions, be used more advantageously. Skeins of 100, 200, and 300 yd. lengths are sometimes employed.

Ready reckoners, as developed in Table IX, may be used for obtaining denier count from such skein lengths without the use of a long and involved table. Development of this table is based on the results obtained from the following formula:

$$\frac{4{,}464{,}528 \text{ yd.}}{7{,}000 \times \text{grains} \times \text{yarn length}} = \text{denier}$$

Substitute in the formula 1 for the grains and 100 yd. for the yarn length tested. Hence, $4{,}464{,}528 \div 7000 \times 1 \times 100 = 6.378$, the denier count of 100 yd. of yarn weighing 1 grain. Similar calculations are made using 120, 200 and 300 yd. and the result recorded in Table IX on the first horizontal line marked 1 grain and under the respective number of yards of yarn. The remaining figures in each vertical column may be obtained by multiplying by the denier just obtained, the number of grains to find the equivalent denier count. Hence, the denier count of 100 yd. of yarn weighing 4 grains would be $6.378 \times 4 = 25.512$ denier.

Use of this table is similar to the basic ready reckoners described in previous issues of TEXTILE WORLD. For example: If 120 yd. of yarn weighs 14.8 grains, what is the denier of the yarn?

Solution: Referring to Table IX it is found that:

Grains	Denier
0.8	4,252
4.0	21.260
10.0	50.315
14.8	75.827 denier

Table IX. Basic ready reckoner for determining denier counts using various yarn lengths.

Yard length	100	120	200	300
Grains	Denier			
1	6.378	5.315	3.189	2.126
2	12.756	10.630	6.378	4.252
3	19.134	15.945	9.567	6.378
4	25.512	21.260	12.756	8.504
5	31.890	26.575	15.945	10.630
6	38.268	31.890	19.134	12.756
7	44.646	37.205	22.323	14.882
8	51.024	42.520	25.512	17.008
9	57.401	47.835	28.700	19.134

BALANCED LIGHTING Needed for Many Textile Operations

HIGHLIGHTS: Proper Combination of General and Localized Illumination Required for Highest Efficiency—Lighting Survey of Mill Is First Step—Intensities Recommended for Various Departments.

ANY TASK that depends on the human eye for accurate and speedy performance requires an amount and a quality of light best suited to its performance if top production is to be achieved. The "seeing" task should therefore be studied carefully and the cost of new lighting equipment balanced against expected returns from the investment. Much has been said, and much done by the mills in the drive to eliminate waste, but little thought has been given to the fact that light also can be wasted. Light wasted is power thrown away, and un-used power represents an unjustified expense. A proper and reasonable balance between general, and local lighting will provide relatively high intensities for close-up illumination directly on the work and good background illumination for the general area in which the operation is conducted. When worked out in the proper proportions, the result is *balanced lighting*—efficient, economical, and easy on the workers eyes.

A lighting survey conducted in any textile mill, if made by a qualified lighting engineer, and his suggestions adopted, might result in changes in the lighting arrangements that will actually pay for themselves in a reasonable length of time, increase production, decrease seconds and waste, raise the quality of the product, and stimulate the morale of the operatives. If your problem has to do with any or all of these mentioned, the subject of modern lighting deserves your careful consideration.

PROBLEMS STILL EXIST. Mills that were thought to be well lighted a few years ago still have problems to face in securing the best results that might be obtained from a completely balanced lighting job.

Thus far few textile mills have given much, if any, attention to balanced lighting. However, the experience of lighting engineers in other industries where the problems are similar to those met with in textile mills, and where satisfactory solutions have been found, should be of value to textile-mill engineers. As an example let us look at the metal-working branch of industry. In addition to good general illumination, which in itself is an aid to prompt and efficient work, as well as an important factor in eliminating accidents, it is desirable to spotlight certain critical points and to control the direction and application of the light so as to prevent interference with adjacent operations. Care must be taken to prevent uncomfortable reflection and glare; and in this, the location of the lamp in relation to the work, to the operative, and the adjacent operative is important.

General illumination should furnish ample light required for placing the work in the machines, for handling material and stock on the floor and in the stock piles, for general adjustment of the machines for the particular job to be done; but it should not necessarily be of the same high intensity required at certain points where accurate visual ability is essential to maximum production. Micrometer measurements may be necessary to finish the task; and if this is true and if speed is desirable, then high intensity of illumination is essential. To provide general illumination where needed, and special high-intensity light where necessary requires special study of each separate task and it is meeting these exacting requirements that "balanced lighting" finds its place.

Many departments in textile mills present problems of this nature. Drawing-in, inspection, printing, perching, shading, for example, should be subjected to a careful analysis. These operations might well be carried out under far more favorable lighting conditions than is generally accepted as common practice. Intensities of 100, 150, 300 foot-candles on the work are not too great in some places, although we have become accustomed to think

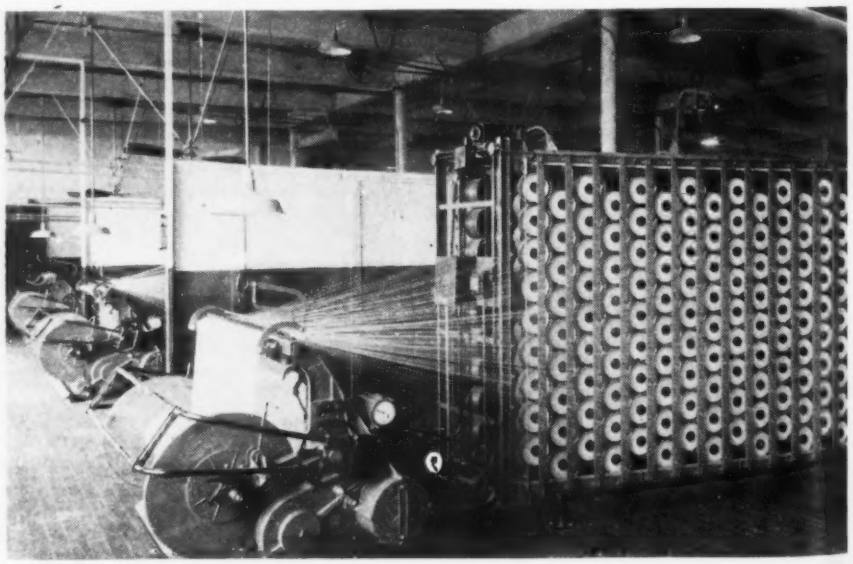


Fig. 1. Lighting fixture placed a short distance above comb of high-speed warper provides local, high-intensity illumination for detecting and piecing up broken ends; other fixtures nearer the ceiling provide general lighting of lower intensity.

in terms of 35 to 50 foot-candles as being ample for these tasks. In fact, in some of the older mills work is still being done under the lighting systems installed 20 or 30 years ago when 10 foot-candles was considered fair practice.

LIGHT IS A TOOL. Light is in one sense a production tool, and to secure the best results throughout the mill it is well to recognize the good qualities and limitations of the various types of lamps available for industrial use. For a few specific tasks, such as color matching, a special lamp has been developed on the principle of screening out certain wave lengths, in order to obtain a result closely approaching daylight. It has found ready acceptance in the grading of cotton fiber; in matching colors, etc. For general illumination, the fluorescent lamp is growing in popularity all the time, as evidenced by the numerous modern installations where a light approaching, but not strictly matching, daylight is desirable and where reliable, economical operation must be had. For spotlighting critical operations and developing high intensities on the working plane, the familiar incandescent filament lamp finds its place. All must be taken into consideration in arriving at the best solution for any particular problem.

The accompanying table might be used as a check against the several departments of the mill. It indicates sections in which balanced lighting might be used in addition to the usual practice of lighting the entire department. Many variables affect the figures shown, and the recommendations given in the chart should be accepted only in a general way to indicate the necessity of a study of the lighting arrangements of any department that is clearly out of line. It is also a good idea to have the investigation made by an experienced lighting engineer, who can place proper emphasis on the factors to be considered.

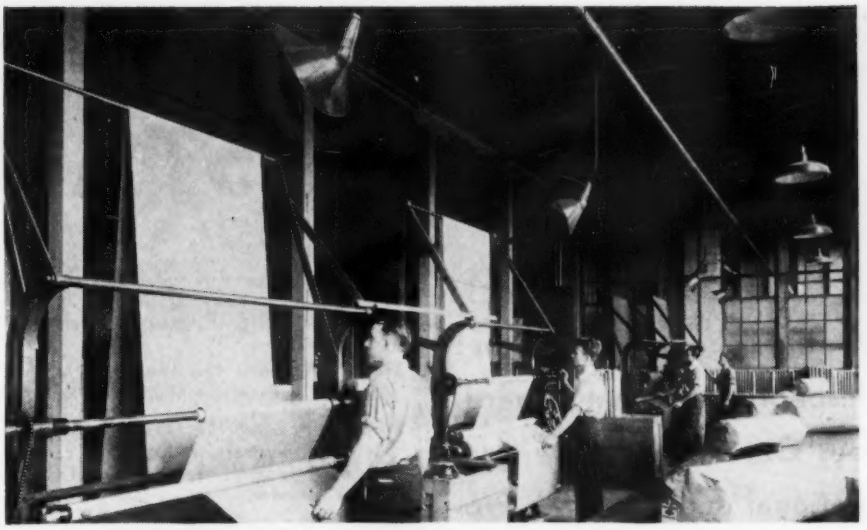


Fig. 2. General illumination in inspecting department is supplemented by special fixtures which give high intensity on fabrics being examined.

For general illumination the most popular source of light available today is the fluorescent lamp. This lamp has been constantly improved as to efficiency and tube-life since its introduction some six years ago. The auxiliary has been simplified and made more reliable, and the time required for starting has been reduced. The possibilities of this type of lighting for general illumination, as well as local lighting in certain instances, should not be overlooked in planning any modern system.

SUPPLEMENTS GENERAL ILLUMINATION. To balance the general illumination, and make sure that sufficient, as well as proper quality of light is directed on the working plane, to insure against waste light where not needed, and hence unnecessarily high overhead costs, it has been found desirable in some operations to supplement the general system with individual lights producing a concentrated, high intensity of illumination at those critical points where speed and accuracy of vision are most important. The local lights should be in adjustable brackets, unless the seeing task is definitely and permanently fixed. Where the location of the work varies, even in narrow limits, the direction of the light must also vary, especially where the point from which the operative views the work is constant.

A few examples taken from the many problems in the mills might be mentioned. In lighting the warping operation, a foot-candle intensity of 35 over the creels is usually satisfactory for doffing, putting up ends, and for handling materials to and from the machine. But over the section beam a much higher intensity is needed if leasing and repairing of broken ends are to be done with a minimum of lost time. The requirements of the slasher operation is similar in many respects. A balanced lighting job here can be easily arranged and will pay good dividends. The seeing problem in full-fashioned hosiery mills is extremely exacting and higher levels of illumination are required than in mills making cloth, or yarn. But even in the knitting mill there are some operations that can be speeded up by furnishing more light than needed in ordinary machine operation, such as turning welts, aligning needles, looping, and transferring. Better quality, as well as increased production, will result from a proper solution of the problem in this case. Balanced lighting may be the answer for some of these mills.

Recommendations for intensity of general and local illumination in various departments of textile mills.

Department	Foot-Candles		Department	Foot-Candles	
	General	Local		General	Local
Storage	5–10	———	Drawing-In	25–30	100–200
Opening & Picking	10–20	———	F. F. Knitting	35–40	———
Carding	10–20	———	Cir. Knitting	35–40	———
Roving	35–40	———	Looping	35–40	100–200
Spinning	35–40	———	Seaming	35–40	100–200
Twisting	35–40	———	Cloth Inspection	30–35	100–200
Mule Spinning	50–55	———	Knit Goods Insp.	30–35	100–200
Throwing	30–35	———	Nar. Fabric Insp.	30–35	150–250
Winding	30–35	———	Printing	30–35	75–150
Slashing	25–30	100	Perching	30–35	100–250
Warping	30–35	100–150	Shading	30–35	100–150
Weaving	25–50	100	Machine Shop	25–30	100–300

Job Training and Safety Discussed at STA Meeting

HIGHLIGHTS: J.I.T. Method Favored—Plant Inspections Reveal Hazardous Conditions—New Educational and Research Program Described

Basic Principles in Instructing New Employees

Step 1. Prepare the Worker
Put him at ease; get him interested in learning all there is to be known about the job.

Step. 2. Present the Operation
Tell how, illustrate, and question carefully and patiently; stress the key points, instruct clearly and completely, taking everything up one point at a time but no more than he can master.

Step. 3. Tryout Performance
Test him by having him perform job and have him tell you how and show you, and have him explain the key points; ask questions and correct errors, and continue until you know that he knows.

Step. 4. The Follow-Up
Put him on his own; designate to whom he goes for help; correct frequently; encourage questions; get him to look for key points as he progresses; taper off with coaching and close.

METHODS FOR TRAINING new workers and organizing safety programs were discussed at a meeting of the Eastern Carolina Division of the Southern Textile Association, held Feb. 26, in Raleigh, N. C. In addition, Dean Malcolm E. Campbell, of the N. C. State textile school, outlined the objectives of the school's new textile educational and research program; and G. H. Dunlap, research director of the school, explained the new research now under way on card speeds and production.

TRAINING METHODS. Instructing new workers by Job Instructor Training as contrasted with hit-or-miss individual methods were explained in considerable detail by A. R. Marley, superintendent, Erwin Cotton Mills Co. The value of the job breakdown to the instructor was pointed out, and it was emphasized that safety and job training are inseparable. The safest way is also usually the best way to perform a job, and this idea must be sold to new employees. By having a standard method of instruction for each new worker, eventually the most desirable methods taught are spread throughout the department. Basic principles in instructing new workers as outlined by Mr. Marley are given in the accompanying panel.

Instructors for new employees should be selected from among those who are doing the job just about right to begin with. New workers are better satisfied when placed with a trainer that knows what he is talking about, and this in itself tends to keep them on the job. Also proper introduction of the new workers to the department and its condition is important.

In regard to old employees, it was the concensus that they will adopt new methods if they are convinced that they can improve their work and make it easier by so doing.

ORGANIZING FOR SAFETY. Employees must have faith in safety to benefit from a safety program. Workers must be sold on the idea of the safety program to begin with for the plant to secure the right psychological effect, which is most important. This can be accomplished through a series of meetings of the employees with the safety director wherein he presents the program to them. Then as the program is gradually unfolded, employees are found to be more receptive.

A superintendent of one mill told of having a safety director and a definite plan of carrying out the program. An advisory safety committee is composed of a management executive, the general manager of the plant, the production engineer, and the safety personnel director. Under this is an employees' safety committee composed of ten members of the rank-and-file of the mill's departments. The safety director sits in on the meetings of these two committees and coordinates them.

Periodic safety inspections are made of the different departments by the employees' safety committee, and possible hazards are discussed at periodic meetings. Particular attention is given any lost-time accident that might have occurred the previous month. Minutes of these meetings are then passed to the advisory committee, which also meets periodically and discusses the items listed by the employees' committee so as to decide the best action to take.

Even the smallest accident is investigated, and in that investigation a member of the employees' committee is called in to assist. As a result of this, it was found that any employee being investigated had a more open mind to the efforts being made. Analysis sheets are made on the accident, care is exercised to find exactly what caused the accident, and every effort is made to prevent a recurrence of similar accidents.

CARDING RESEARCH. The carding project undertaken by Mr. Dunlap is divided into a series of studies. In the first series, attention is being given to a number of variables individually, the other variables being held constant where possible. A study of the effects of changes in the speed of the entire machine, the cylinder, the lickerin, the doffer, and the flats will be made in sequence; and the effects of varying the settings of the front knife plate, the weight lap fed, and the draft on the card will be measured. The second series will involve a study of production based upon the findings in the first series.

New Division officers are as follows: Virgil E. McDowell, overseer carding, Rosemary Mfg. Co., Roanoke Rapids, N. C., chairman; Sidney Green, treasurer, Eno Cotton Mills, Hillsboro, N. C., vice chairman; and A. R. Marley, superintendent, Erwin Cotton Mills Co., Durham, N. C., secretary.

PACKAGE DYEING with Vat Colors

HIGHLIGHTS: Experiments Point Way to Improved Processes—High Rate of Flow Promotes Level Shades—Careful Control of Temperature Found Essential—Judgment Needed in Selection and Use of Leveling Agents—Commercial Formulas Developed.

By O. W. CLARK

Calco Chemical Division, American Cyanamid Co.

PRODUCTION OF LEVEL DYEINGS throughout each package and throughout all the packages of a lot is the outstanding problem confronting the package dyer. Commercial requirements demand that level dyeings should be produced on the largest possible packages, at minimum overall cost, and in the shortest possible time. The experiments described in this article represent a preliminary study of some of the fundamental factors in the vat dyeing of yarn wound in package form on perforated tubes. They are part of a more comprehensive investigation designed to assist in the development of improved dyes and dyeing processes. Results of the experiments were employed in working out the formulas for commercial application given in the latter part of the article. In the experiments described below, in order to accentuate the effects so that they would show clearly in the photographs, dyeings were made with the direction of flow continuously outside-in. It will be observed that under some conditions perfectly level dyeing can be produced without periodically reversing the direction of flow.

In general, the levelness of a vat dyeing is effected by the rate at which the color exhausts from the bath, the rate of diffusion of the dye within the fiber, and upon the type of equilibrium existing between the dye upon the fiber and in the bath. Although careful selection of dyes possessing the desired inherent dyeing characteristics might seem the logical method of insuring level dyeings, in practice this cannot always be done, because other factors, such as shade, fastness, or low cost, must be given primary consideration. Unfortunately, many of the dyes most useful from a merchandising viewpoint do not possess the desired inherent level-dyeing characteristics and it is necessary for the package dyer to control their behavior by exercising chemical, physical or mechanical ingenuity.

WINDING. One factor with which the package dyer has to contend is the winding of the package. It is generally recognized that correct winding of the yarn into packages plays a very important part in the quality of the finished dyeing. A great deal has been written on the problem of winding and equipment for winding has been greatly improved over the years, all with the aim of delivering a batch of packages, each similar in density, and each uniform in density throughout its cross section so that every portion of the yarn is equally accessible to the dye bath. Effect of different densities on the level dyeing of packages is clearly shown in Fig. 1.

RATE OF FLOW. Level dyeing is promoted by keeping every portion of the

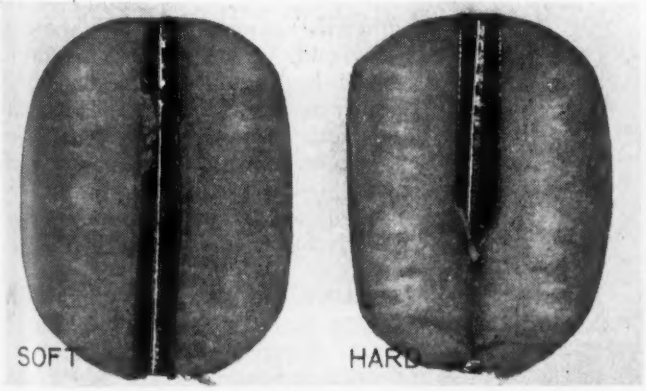


Fig. 1. Cross-sections of a soft package (left) and a hard package (right) dyed at a rate of liquor flow of 2 gal. per pkg. per min., show the effect of densities on levelness.

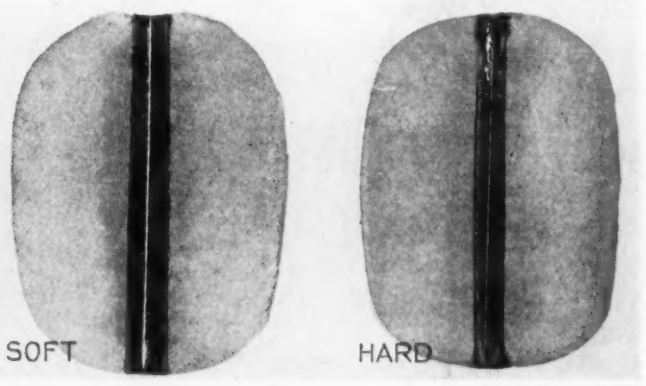


Fig. 2. By increasing the flow from 2 gal. to 4 gal. per pkg. per min. greater levelness of dyeing is secured in both the soft and the hard packages.

yarn throughout the package continuously in contact with the same concentration of dye bath. Since the exhaust rates of many vat dyes are extremely rapid; when the rate of flow of the dye bath through the package is insufficient, such a dye will partially or totally exhaust upon those portions of the yarn that it first contacts, and the succeeding portions of the yarn will be either lightly dyed or left undyed.

Sample dyeings illustrated in Fig. 2 show that improvement in levelness can be secured on packages of different densities by increasing the rate of flow of the dye liquor.

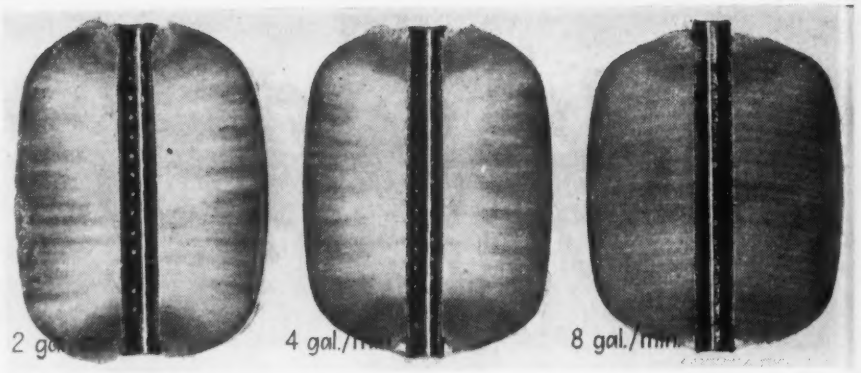


Fig. 3. Cross-sectional views of dyed yarn packages showing the effect on levelness of dyeing by increasing the rate of flow of dye liquor from 2 to 4 and 8 gal. per pkg per min.

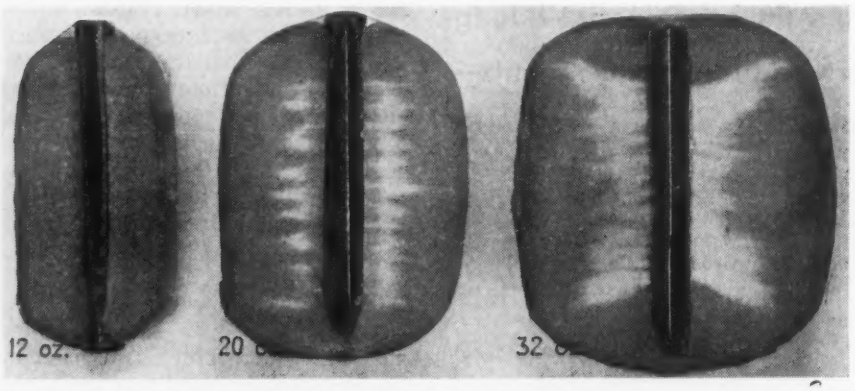


Fig. 4. Effect of package size on levelness of dyeing shown on 12-, 20-, and 32-oz. packages dyed at 2 gal. per pkg. per min.

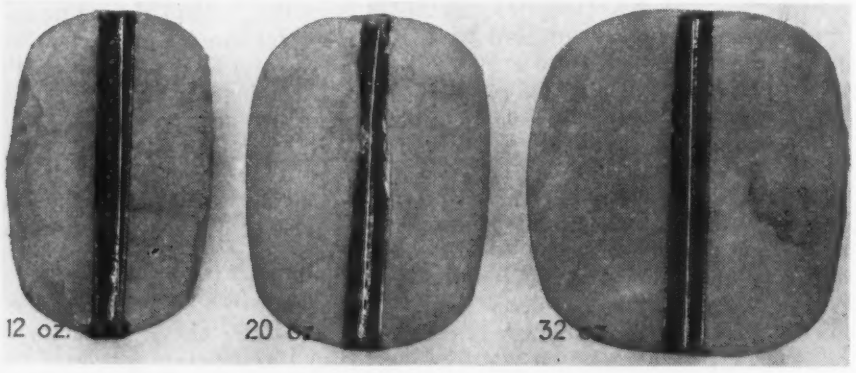


Fig. 5. Improvement in levelness of dyeing shown by the dyeings of 12-, 20-, and 32-oz. packages dyed 4 gal. per pkg. per min. instead of 2 gal. per min.

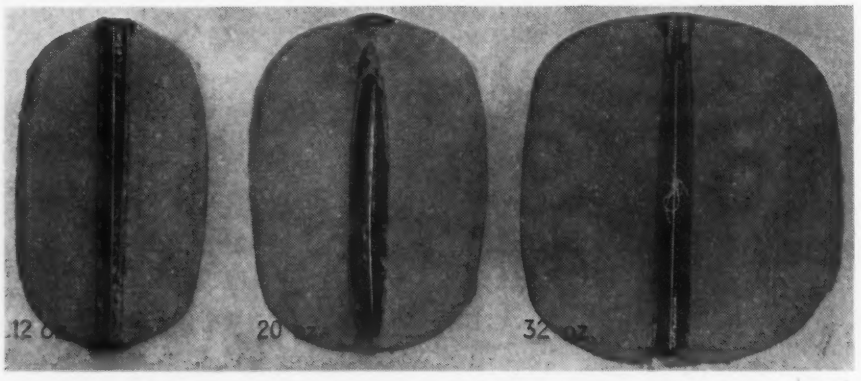


Fig. 6. Additional improvement in levelness shown by 12,- 20-, and 32-oz. packages dyed at 8 gal. per pkg. per min.

Whereas early types of package dyeing machines maintain relatively low rates of flow, modern machines have higher rates of flow, and in future machines perhaps even higher rates of flow will be provided for. Increasing the rates of flow means higher first cost for equipment and higher power costs. How far it is possible to go in this direction depends upon the point at which an economic balance can be reached with the total over-all dyeing cost. Higher rates of flow minimize unlevelness due to non-uniform package density and also permit the dyeing of large packages. Examination of the sample dyeing illustrated in Fig. 3, shows the effects on levelness of increasing the rate of flow of dye liquor on the same weight packages. Photographs in Figs. 4, 5, and 6 show how levelness in packages of different weights is improved by increasing the rate of flow of the dye liquor.

TEMPERATURE. The rate of exhaust of vat dyes is influenced by the dyeing temperature and with some dyes levelness may be promoted by higher temperatures, Fig. 7, and with other dyes, temperature manipulation, Fig. 8. Since each vat dye is a chemical individual, the effect of variation in dyeing temperature must correspond to the inherent nature of each specific dye. The same variation in temperature which slows up the rate of exhaust may also favorably affect the rate of diffusion and penetration. In some cases, the improvement in levelness caused by a higher rate of diffusion and increased penetration may outweigh a slightly increased rate of exhaust.

LEVELING AGENTS. As should be expected from the wide difference in chemical constitution of various vat dyes, their behavior in the presence of leveling agents is found to be quite specific, Fig. 9. Leveling agents often produce their effect by causing a con-

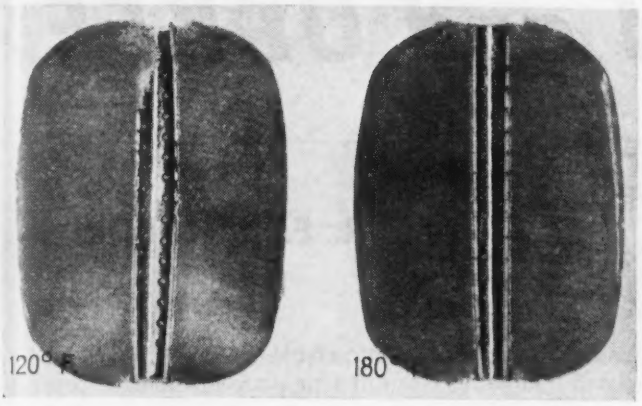


Fig. 7. Cross-section of samples dyed at 120° and at 180° F., show that this dye gives improved levelness at the higher temperature.

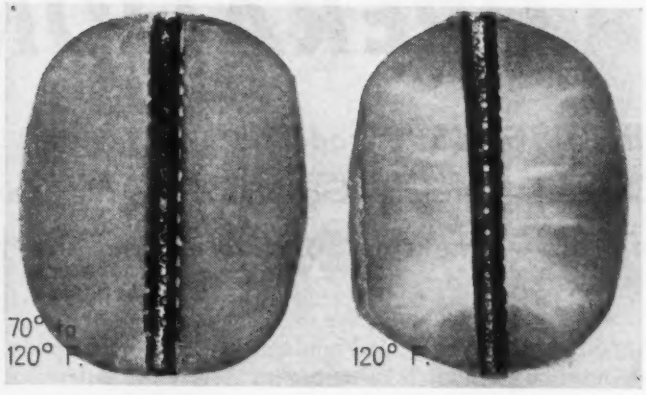


Fig. 8. Example of a dye which exhausts very rapidly at 120° F., but very slowly at 70° F. By starting the dyeing at 70° F. and slowly raising the temperature to 120° F., a level dyeing is produced.

siderable portion of the dye to be retained in the dye bath which eventually reaches and dyes the less accessible portions of the yarn. Use of leveling agents may require the use of extra dye to give the desired shade. In view of the above facts, leveling agents must be carefully selected and used judiciously.

High rates of flow often obviate the need for leveling agents in the dyebath, as shown by sample dyeings in Fig. 6.

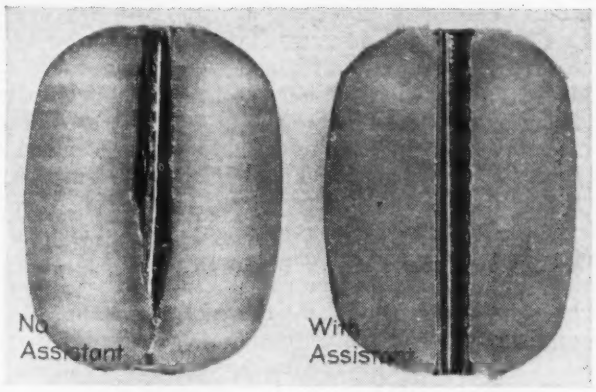


Fig. 9. Example of a dye which, when dyed under the specific conditions of this experiment, shows increased levelness when a leveling assistant is added to the dyebath.

COMMERCIAL FORMULAS FOR PACKAGE DYEING

Three formulas worked out as a result of the series of experimental dyeings

Formula No. 1

Illustrating the use of a high temperature to produce a level dyeing of a light shade on 1½-lb. packages without using proprietary leveling agents and without requiring excessive dyeing time.

Shade: Slate blue

Material: 500 lb. of 50/4 cotton yarn; 24-oz. packages

Machines: Stainless steel; Yarn-to-Bath Ratio = 1:12; Rate of Flow = 4 gal./pkg./min.

Procedure: Pigment method

Calcoloid Navy Blue NTD Double Paste ¾%

Calcosol Brown R Paste (C.I. 1151) ¼%

Calcosol Olive R Paste (C.I. 1150) ½%

Soap Flakes 2%

Circulate the dispersed dye on the dry package for 10 min. at 180° F., adding one-half of the dye on the outside-in cycle and one-half on the inside-out cycle.

Add 5% caustic soda flakes (dissolved).

Add 2½% hydrosulphite.

Circulate 10 min. at 180° F. reversing.

Add 10% glauber salt crystals.

Circulate 5 min. reversing.

Add 10% glauber salt crystals.

Circulate 5 min. reversing.

Turn on the cold water and rinse inside-out, running the effluent to the sewer until neutral to Clayton yellow paper, about 20 min.

Oxidize 10 min. at 140° F. with 1% acetic acid (56%) and 1% hydrogen peroxide (100 vol.).

Drain and refill at 200° F.

Add 1% soda ash.

Circulate 5 min.

Add 2% soap flakes.

Circulate 20 min. at 200° F.

Drain and rinse twice at 200° F., 5 min. each time.

Total circulating time = 90 min.

Actual elapsed time = 2¼ hr.

Formula No. 2

Illustrating the use of a leveling agent plus a high rate of flow to produce a level dyeing on large packages in a minimum dyeing time.

Shade: Baby blue

Material: 100 lb. of 60/3 mercerized Sak yarn; 24-oz. packages.

Machines: Stainless steel; Yarn-to-Bath Ratio = 1:8; Rate of Flow = 6 gal./pkg./min.

Procedure: Pigment method

Wet out the yarn cold to 200° F. with 1% soluble pine oil and 1% soda ash.

Drain and rinse twice. Refill at 160° F.

Add 1% Calcoloid Blue BLD Double Powder (C.I. 1114) and 0.1% Calcoloid Violet 6RD Double Powder.

Circulate the dispersed dye 10 min. at 160° F. reversing.

Add 2½% caustic soda flakes (dissolved).

Add 2% sodium lignin sulphonate (dissolved).

Circulate 10 min. at 160° F., reversing.

Add 2½% hydrosulphite.

Circulate 20 min. at 160° F., reversing.

Complete the dyeing as outlined in the previous formula.

Formula No. 3

Illustrating the dyeing of large packages using a high rate of flow and eliminating the customary reversal of flow.

Shade: Green

Material: 100 lb. of 40/2 cotton yarn; 24-oz. packages

Machine: Stainless steel; Yarn-to-Bath Ratio = 1:8; Rate of Flow = 6 gal./pkg./min.

Procedure: Pigment method—flow all outside-in

5% Calcosol Olive Green BN Paste.

2% Soap Flakes.

Circulate the dispersed dye on the dry packages for 10 minutes at 180° F.

Add 4% caustic soda flakes (dissolved) and 4% hydrosulphite.

Circulate 20 min. at 180° F. all outside in.

Complete the dyeing as outlined in the first sample.

OPERATION and UPKEEP of

HIGHLIGHTS: Production of Winders and Quillers Charted—Tensions Governed by the Various Counts of Yarn—Timetable for Lubrication and Maintenance.

By
R. F. LANGFORD

WINDER OPERATION and upkeep must be given careful attention to prevent loss of production and impairment of quality of the yarns in process. This is particularly important in mills running on heavy yarns for duck, webbing, and similar materials for military purposes. Winder maintenance practices have a definite relationship to the type of yarn run, spindles assigned per operator, and the average machine efficiency of the winders, Table I, as machines operated at the higher average efficiencies require the most rigid adherence to the schedules for adjustment of tensions, cleaning, lubrication, and repair to prevent breakdowns and the consequent loss of production.

TENSION. In order to get a package of the correct density and yardage, winder tension must be carefully adjusted. Too much tension makes a package difficult to remove from the spindle, and causes undue friction on the yarn. Too little tension results in soft packages or sloughing off at subsequent processes. For each yarn number, the tension on each end should be set the same in order to secure uniform tube density and package size.

On the No. 50 Universal winder as the tube fills up less tension is needed, since the surface speed and friction on the yarn are increased. The winder tension mechanism is designed to change the tension applied to yarn as the yarn speed increases with the package diameter. Two weights on graduated arms can be set to give the desired tension weight. The differential pressure weight is designed to offset the counterweight and is seldom changed unless the traverse guide is being pulled too tight against the tube by the counterweight. The differential tension weight governs the pressure put on the yarn by the entire tension assembly. As the package fills up, the differential-tension-weight arm is raised so that the leverage is reduced and less tension put on the arm.

Differential pressure weights for No. 50 winders are 15 oz. for heavy yarns. Differential tension weights range from 5 oz. to 20 oz. depending on the yarn.

Tension adjustments on the No. 90 Universal quill winder and the No. 30 Foster cone winder depend upon other weighing devices to receive the proper tension; and the weight to use for each yarn number should be standardized and charted as a guide to fixers or change men.

LUBRICATION. Winders must be lubricated properly in order to prevent excessive wear on the fast-moving parts. The slow-moving parts must also be lubricated regularly. Table II is a composite schedule for the systematic lubrication of the three types of winders in one mill. Other schedules can be devised to suit individual requirements and recommendations of the winder manufacturers or lubrication engineers.

MAINTENANCE. Strict adherence to prepared schedules, similar to those in Table III, is necessary to good winder maintenance. In the preparation of such a schedule, the overseer and the fixers should cooperate in order to avoid overlooking important points that should be included and to be sure that the fixers are in accord with the detailed requirements. Fixers then can have no excuse for neglecting to follow the routine of work, and they can be relied upon to carry out the schedule without a lot of supervision. These tables should be compact, easily-read schedules for the maintenance of each type of winder and they should be posted in convenient locations over tool boxes, work benches, etc.

Table I.—Production and Assignment Chart

Yarn No.	Spindles per Operator	Lb. per Spindle per hr. at 100%	Lb. per Spindle per 8 hr. at 100%	Lb. per Spindle per 24 hr. at 100%	Avg. Mach. Eff.	Lb. per Spindle per hr. at Avg. Eff.	Lb. per Spindle per 8 hr at Avg. Eff.	Lb. per Spindle per 24 hr. at Avg. Eff.	Type Package
NO. 50 UNIVERSAL WINDERS									
7/3	30	10.12	80.93	242.78	66%	6.677	53.42	160.25	6″x6″ tube
7/4	24	13.47	107.76	323.28	61%	8.22	65.76	197.28	6″x6″ tube
7/5	18	16.83	134.64	403.92	63%	10.60	84.80	254.40	6″x6″ tube
8/3	30	8.86	70.88	212.64	44%	3.90	31.20	93.60	6″x6″ tube
8/4	24	11.78	94.24	282.72	72%	8.48	67.84	203.52	6″x6″ tube
8/5	24	14.73	117.84	353.52	55%	8.10	64.80	194.40	6″x6″ tube
9/3	24	7.85	62.80	188.40	60%	4.71	37.68	113.04	6″x6″ tube
10/3	36	7.08	56.64	169.92	44%	3.12	24.96	74.88	6″x6″ tube
12/3	30	6.10	48.80	146.40	61%	3.72	29.76	89.28	6″x4½″x6½″ (Cone Pkg.)
13/3	30	5.44	43.52	130.56	74%	4.03	32.24	96.72	6″x6″ tube
Spindles per mch. 6 — Spindle Speed 1100 r.p.m.									
NO. 90 UNIVERSAL QUILL WINDERS									
10/4	20	3.99	31.92	95.76	76%	3.03	24.26	159.60	*Quill
Spindles per mch. 20 — Spindle Speed 1600 r.p.m.									
NO. 30 FOSTER WINDERS									
12/1	50	1.345	11.76	32.38	58%	.78	6.24	18.72	6″ Cone
Spindles per mch. 100 — Spindle Speed 1295 r.p.m. * Average Working Diameter — 1″									

EPof WINDERS on Heavy Work

Table II.—Lubricating Schedules

No. 50 UNIVERSAL WINDERS

	Frequency	Type of Lubricant	Amount
Idler Pulley Arm	Once a Week	Oil Vis. 210 to 250	One Drop
Spindle Reservoir	Once a week	Oil Vis. 210 to 250	Fill to overflow
Alemite Fittings Oilite Bushings	Once a month	Lime Soap Grease	Fill to cover
Gainer Case	Every three weeks	Oil Vis. 210 to 250	Fill to cover lower rim of cam shaft
Traverse Bar	Daily	Oil Vis. 210 to 250	One Drop
Bar between guide holder and frame	Daily	Oil Vis. 210 to 250	One Drop
Idler and Intermediate Pulleys	Monthly	Lime Soap Grease	Enough to lubricate

NO. 90 UNIVERSAL QUILL WINDER

Case and Frames	Monthly–More often if worn	Oil Vis. 210 to 250	Fill until oil flows through frame oil tubes
Shaft Bearings	Weekly	Oil Vis. 210 to 250	Partially filled with oil through cover
Tension Arms and Bottom Spool Spindles	Weekly	Oil Vis. 210 to 250	Enough to lubricate

Note: Oil viscosities are given in seconds Saybolt at 100°F. (Lubricants for Nos. 50 and 90 winders given above were developed specifically for 24-hour 7-day operation in one mill on heavy duck yarns. Winder manufacturer only recommends oil viscosities of 120 to 135 sec. Saybolt at 100°F. for No. 50 winders and 125 to 150 sec. Saybolt at 100°F. for No. 90 quillers as given in their published schedules.)

NO. 30 FOSTER WINDERS

	Frequency	Type Lubricant	Amount
Head End Bearings	Twice Daily	Oil Vis. 210 to 250	Enough to lubricate
Traverse or Guide Bars	Twice Daily	Oil Vis. 210 to 250	Enough to lubricate
Drum Shaft bearings	Each Shift	Oil Vis. 210 to 250	Enough to lubricate
Cone Arbors or spindles	Twice Weekly	Oil Vis. 210 to 250	Enough to lubricate
Rollshaft Boxes	When Needed	Soda-base animal fat lubricant	Enough to lubricate
Drums	Twice Weekly	Lime base or mixed based grease of medium consistency	Enough to lubricate

Note: Oil viscosities are given in seconds Saybolt at 100°F.

Table III.—Maintenance Schedules

NO 50 UNIVERSAL WINDERS

Every Day	Every Week	Every Month	Every Six Mo. to Yr.
A. Check Tube or Cone Size 1. Proper build and size. 2. Make necessary adjustments.	A. Inspect tension weights. 1. Adjust as needed. 2. Use same wt. for same number always.	A. Clean cam box. 1. Refill with 210 V. oil.	A. Complete overhauling.
B. Inspect all thread guides 1. Replace any that are cut. 2. Clean once each shift with compressed air.	B. Inspect stationary bar. 1. Remove broken bars.	B. Inspect cam rolls. 1. Discard the worn rolls.	B. Paint frames and yarn trucks.
	C. Check slub catcher settings 1. For wear. 2. For misadjustment.		C. Clean all frames of sludge and oil thoroughly.
	D. Check spindles 1. Straighten those not found true.		
	E. Check creels and keep tight.		

NO. 30 FOSTER WINDERS

Every Day	Every Week	Every Six Mo. to Yr.
A. Clean every shift.	A. Clean entire winder—underneath and on top.	A. Complete Overhauling.
B. Pick thread off guide roll shaft.	B. Clean between drive roll and cam cover by passing cardboard between.	B. Paint frames.
C. Use as heavy tension as yarn will stand.	C. Check to be sure cone belts are clean and tight.	C. Clean all frames of sludge and dirt and oil thoroughly.
D. Note that the friction yoke spring is not too tight as to avoid ridges. 1. Keep slight friction on yoke. 2. Keep socket tilting yoke adjusted to insure correct build.		

NO. 90 UNIVERSAL QUILLERS

Every Day	Twice Each Week	Every Week	Every Month	Every Six Mo. to Yr.
A. Check bunch builders. 1. Proper size bunch. 2. Releasing properly.	A. Tighten bunch builder adjuster arms.	A. Tighten bunch builder to frame.	A. Check oil in frames and gainer cases. (If worn do this more often.)	A. Complete overhaul.
B. Check Stop Motions.	B. Tighten bunch builder thread guide arms.	B. Tighten traverse bar collars.	B. Adjust tensions on top of frames. (Adjust so that all are even when released.)	B. Paint frames.
C. Check tension on bottom feed spool. (Just enough to make a tightly wound quill.)	C. Oil bottom spindle bearings and tension arm pins.	C. Oil shaft bearings.	C. Check bottom spindles. 1. Straighten. 2. Check flat springs. 3. Adjust tension.	C. Clean all frames of sludge and refill with fresh oil.
		D. Oil tension arms on top of frames.		
		E. Drain oil from drip pan.		
		F. Clean machine thoroughly.		

Coating NYLON FABRICS for Military Use

HIGHLIGHTS: Three Methods of Compensating for Uneven Weave—Light Sizing Prevents Yarn Slippage—Hints on Preventing Wrinkles — Eliminating Static Electricity.

Recently the Philadelphia Quartermaster Depot has issued bids for large quantities of a coated nylon fabric covered in Specification P.Q.D. No. 257A. Accordingly, we are interrupting Mr. Cleaveland's series of articles which started last month on "Machines and Methods for Plastic Coatings" to present this special article on precautions in coating nylon fabrics.

NEW USES FOR COATED FABRICS made from nylon are being found constantly, as is shown by the present interest of the Army Quartermaster Corps in the use of a coated nylon twill for ponchos. The light weight, strength, and durability of the fabric make this interest readily understandable, but unfortunately such nylon fabric is often not all that the coating plant could desire. The weaver is working with a new and unfamiliar yarn. Each type of cloth is a new experience, with new problems to be met, and with new techniques to be worked out. Slippage of the yarn and distortion of the weave show up for no apparent reason; slack centers and baggy selvages are suddenly in evidence. With such unusual difficulties caused by the unfamiliar handling conditions, all this is perhaps forgivable—but the coater is still left with a serious problem on his hands that can, potentially at least, cause a huge loss in seconds.

It is possible, however, to overcome many of these difficulties. With experience, such synthetic fabrics will prove satisfactory to coat, and losses will prove to be no greater than result from coating other more familiar fabrics.

The two greatest difficulties experienced in the handling of nylon fabric arise, first, from recurring tight and slack sections across the cloth, particularly evidenced by baggy selvages and slack centers, and, second, from the case with which bad static charges develop in the cloth.

Fig. 1. Compensating for bagginess and slack in nylon fabric while sewing a make-up seam.

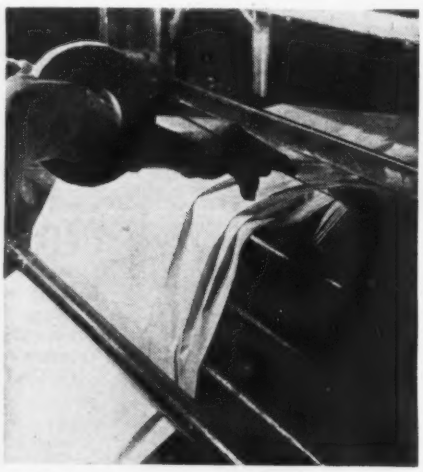


Fig. 2. Building up a tension bar to overcome a slack section of fabric.

CONTROLLING SLACK. Some control may be exerted in the make-up of the roll preparatory to coating. Butt-end splices, such as made by Merrow or Metropolitan sewing machines, prove to be generally most satisfactory for coating. However, these machines trim the cloth at the same time as sewing it, and an alteration should be made to eliminate this cutting. If this is not done, the thread is sewed too near the edge of the trim and the synthetic yarn is so slippery that the splice readily pulls apart as soon as tension is applied to it. If the knives are not allowed to cut, the edges of the fabric are turned under in such a way that the thread passes through a number of thicknesses of cloth and is thus anchored securely.

Fig. 3. Method of backing up a light fabric with a heavy duck, thus holding the nylon evenly against the knife.

It is easily possible to sew the splice crooked (as shown in Fig. 1) in such a manner that it compensates for a slack spot in a fabric or a baggy selvage. It is sometimes advisable to cut and re-splice a fabric a number of times, thus taking out unevennesses in the weave as they develop.

Many make-up machines are so constructed that little tension is applied

to the web. This is not desirable for nylon, since much of the slack may be taken up if sufficient tension is applied before coating. It is often helpful to run the cloth through the coating machine dry with full tension before coating. This requires a bit more time, but much of the slackness will be taken up and potential bad spots may be removed before any coating materials are lost. The ideal method is, of course, to have a make-up machine that will put the cloth under this tension at the time of the original winding.

The slack may also be controlled in the coating operation by building up the tension bar in front of the coating knife with cloth or paper tape as shown in Fig. 2. The back tension bar may be similarly treated in bad cases.

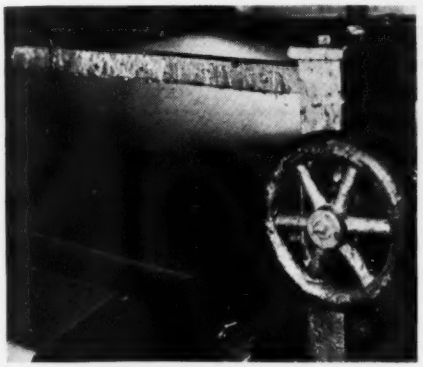


Fig. 4. Coating knife with sharp edge set for a light sizing coat on nylon fabric. The blade is generally set at about a 30° angle to the vertical to obtain best results.

USE OF BACKING FABRIC. Greatest control of all for a light fabric may be exercised by backing the fabric under the knife with a heavier one, as shown in Fig. 3. The heavy cloth is anchored to the front tension bar and allowed to drape under the knife and over the back tension bar, where a weight is attached to hold the fabric taut. The light cloth to be coated is then threaded between the backing fabric and the knife as shown in the illustration. This tends to hold the cloth being coated firmly to the knife and no slack places are allowed to develop. By changing the weight on the loose end of the fabric, a complete control of the tension under the knife may be maintained. In this way many of the creases and wrinkles that sometimes show up in synthetic fabrics will be ironed out.

On some extremely light synthetic fabrics the slippage of the yarn presents quite a problem, and a light sizing coat must be applied before this heavy-cloth-backing method of coating may be used. Although special roller coating machines are most suitable for this sizing, it is possible to do it on the more available knife-spreading machines. The sharp-edged blade, such as shown in Fig. 4, is most suitable. It should be set at about a 30° angle to the vertical.

As thin a solution as possible should be used, with just enough viscosity so it does not penetrate to the back of the fabric being coated. With this thin solution and sharp blade, it is possible to apply a light coat that will anchor any wandering yarns and still cause little trouble from coating the slack areas too heavily. The backing tension cloth may then be used and heavier coats applied without danger of uneven coating or pulling threads in the fabric.

Fig. 5. Snapping a spring spreader in place to keep wrinkles or folds from forming. These wire spreaders hold the fabric to full width during drying.

PREVENTING CURL. Some nlyon fabrics exhibit a tendency to curl in the drying oven, but this may be controlled quite easly by placing bars or rollers in a suitable "turtle back" arrangement so the fabric touches some surface before the edges turn completely over. Any slight tear in the selvage will cause a curl or even possibly a complete break. If the tear is so slight as to offer no danger of a break, it can be kept straight by fortifying with small tab of gummed, kraft-paper tape pasted to the underside of the fabric. Any small hole in the center of the fabric may also be so repaired.

It is helpful to have on hand a number of wire spreaders as shown in Fig. 5. These are made from light spring wire, sharpened on the ends and bent to form hooks. They should be made a little longer than the width of the fabric so that, when pinned in place, they will exert a slight pressure, thus holding the fabric taut and eliminating any wrinkles that may tend to form. If such a spreader is used on fabrics having an uneven weave caused by tight filling bars, all wrinkles are kept from forming and many yards of cloth are saved. Of course, the spreader must be removed again at the take-up end of the coating machine before reaching the wind-up roll.

Another way to minimize and control the wrinkles formed by a tight filling bar is to paste a strip of gummed, kraft-paper tape across the fabric on each side of the wrinkles and on the underside of the cloth. This tape can be left on permanently and cut out when the coated cloth is being inspected.

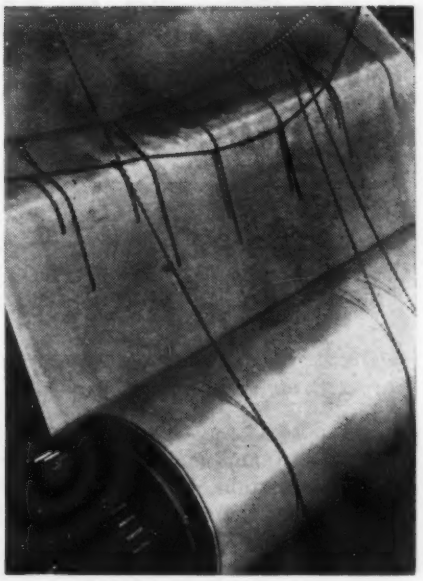


Fig. 6. A satisfactory way to comb out static charges that develop so easily in coated synthetic fabrics. Light furnace chains may be used, as shown, or Christmas tree tinsel substituted.

ELIMINATING STATIC. Synthetic fabrics are bad offenders in the formation of static. This is particularly true after coating, and the charge that accumulates after the fabric passes over any bar or roll must be carefully combed out to eliminate a very real danger. A heavily charged fabric is also difficult to keep clean, because of the ease with which it picks dirt out of the air.

An efficient static combing system is shown in Fig. 6. It is formed of furnace chain and should be allowed to dangle lightly against the cloth. Christmas tree tinsel, which is sometimes used, is very good, but is so fragile that it quickly wears out.

WOOLEN and WORSTED FABRICS for Next Year

HIGHLIGHTS: Men's Wear Styles for Spring and Summer Will Be a Continuation of Present Numbers — Blends of Wool and Rayon Will Be Popular.

By HAROLD E. REED
Assistant Editor, TEXTILE WORLD

FABRICS FOR 1945 →

This article is intended to assist woolen and worsted designers in preparing 1945 spring and summer lines of fabrics. Few fabric changes are apparent in the accompanying illustrations, which show a number of representative fabrics. Men's worsted suitings, students' suitings and sports coat fabrics, and pant fabrics are shown.

SPRING FABRICS are always a source of speculation. Under present conditions when the armed services must first be supplied, a venture as to possible spring and summer fabrics for 1945 would be extremely hazardous. However, if we assume that the war will continue throughout the spring and summer of 1944 with increased vigor, and that resistance is still determined, it may be stated safely that no appreciable change will be found in men's wear fabrics for 1945. As the authorities are now inclined to believe that it will be a long, drawn-out conflict, it appears safe to rely on this assumption.

MARKET CONDITIONS. Tight, describes the present market condition with regard to men's worsteds. Woolens, such as cashmeres, cheviots, and similar soft fabrics used extensively by the boys clothing trade, are available. The big pinch appears to be in worsted, and very little relief is in sight.

The worsted weaving industry does not, in itself, possess sufficient spindlage to provide all the worsted yarns normally required. With the slackening of Government and civilian orders during the fall of last year and the recent increase in worsted yarn requirements for knitted military fabrics, commission spinners turned to supplying the knit-goods industry.

With the profit differential in favor of the knitters, it is hard for the weavers to wean the spinners back again. Recent Government procurements in worsteds call for over 2,000,000 yd. of goods a month over the next few months, and will tax the spinning capacity of the worsted weavers. Unless relief is obtained from commission spinners—and mass movement in this direction is highly improbable until present military knit-good procurements are completed—civilian worsteds will undoubtedly remain tight.

FABRICS AVAILABLE. Current fabrics will remain in vogue throughout the coming year. Colors will be dark, pin stripes and chalk stripes will be prevalent. Fabrics will be designed for the older-age groups and for the boys' groups. There will, however, appear occasional plaids in the lighter colors, by such yardage will be limited.

Blended fabrics will come in for a large share of popularity, especially in pants fabrics and in boys' suiting materials.

Worsted tropicals have been in limited production for several years. All-rayons such as staple prepared on the cotton system will continue to make inroads into this field.

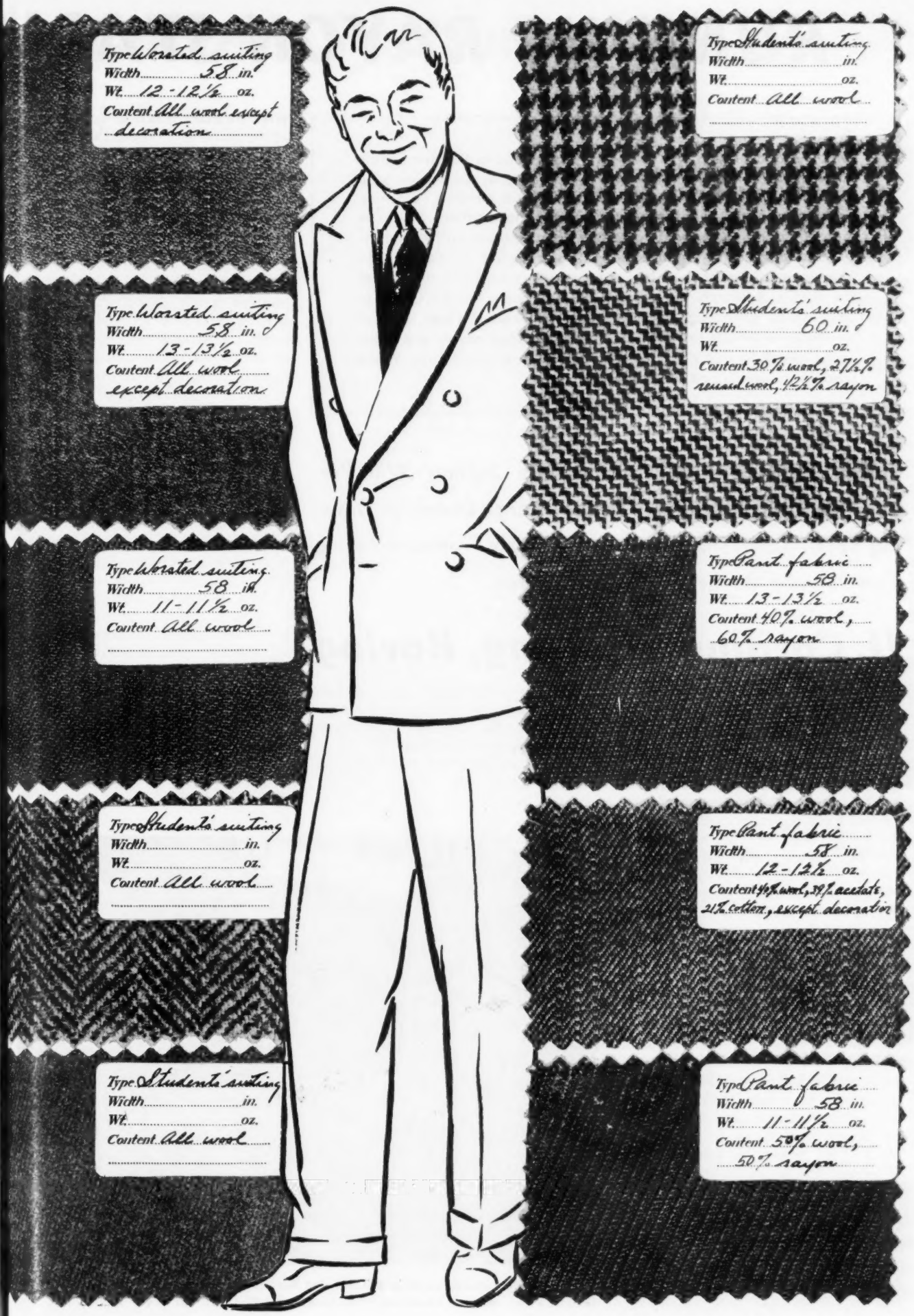
These assumptions are based on a prolonged war and in view of conditions at the time of writing, it appears that regardless of unforeseen changes, the fabric picture will remain practically the same for the next few months to come. Typical fabric samples are shown in the accompanying illustrations.

FABRIC CONSTRUCTIONS. Men's worsted suiting material, as illustrated, is represented by the first three samples. Shown are two samples with a decorative pin stripe. These are all-wool with the exception of the decorative material. Because of greater costs of heavier weight fabrics, these may be expected to be constructed on the light side. Colors are conservative. The third fabric in this group, while conservative in color, is different in construction. A body weave of 2/1 twill is used, but the fine wale-like vertical stripe is created by using a plain weave.

Students' suiting material consists mostly of cashmeres and other soft fabrics. A number of such samples are illustrated. First, is a typical herringbone type twill which is always popular, especially in black and white, although colors are not limited to this selection. Another all-wool fabric suitable for students use is a well-woven, unfinished worsted showing a slight twill effect. A fabric for sport-coat items is shown with a fancy ground effect being obtained with colored yarns. Such fabrics are intended almost entirely for the students' trade.

An interesting blended fabric for the boys' and students' trade is shown, it consists of 30% wool, 27½% reused wool, and 42% rayon. This fabric has a saw-tooth like ground obtained by colored yarns with an overplaid in light tones. This illustrates what can be done utilizing blends when necessary to produce a fabric of low cost, but of good appearance.

Pant fabrics, as a group, consist of blends and are made to meet certain price groups. Two of these fabrics, such as the narrow-wale and the wide-wale fabric are representative, each having a rayon content of 50% or over. Fabrics of this type, such as semi-clear and clear twills and cavalry twills will be noteworthy. Another interesting pant fabric is represented by the sample containing 40% wool, 39% celanese rayon and 21% cotton. Extensive use of rayon for decorative stripes is used in this fabric.


Type Worsted suiting
Width 58 in.
Wt. 12 - 12½ oz.
Content All wool except decoration
Type Worsted suiting
Width 58 in.
Wt. 13 - 13½ oz.
Content All wool except decoration
Type Worsted suiting
Width 58 in.
Wt. 11 - 11½ oz.
Content All wool
Type Student's suiting
Width in.
Wt. oz.
Content All wool
Type Student's suiting
Width in.
Wt. oz.
Content All wool
Type Student's suiting
Width in.
Wt. oz.
Content All wool
Type Student's suiting
Width 60 in.
Wt. oz.
Content 30% wool, 27½% reused wool, 42½% rayon
Type Pant fabric
Width 58 in.
Wt. 13 - 13½ oz.
Content 40% wool, 60% rayon
Type Pant fabric
Width 58 in.
Wt. 12 - 12½ oz.
Content 40% wool, 39% acetate, 21% cotton, except decoration
Type Pant fabric
Width 58 in.
Wt. 11 - 11½ oz.
Content 50% wool, 50% rayon

RUNNING RAYON STAPL

Opening and picking operations were discussed in the first installment of this series of articles which appeared in the March issue of TEXTILE WORLD. The present article on carding, drawing, and roving covers what are probably the most critical phases in manufacturing spun rayon yarns and blends on the cotton system. A subsequent article will take up the spinning operation. Mr. Culpepper, the author of this series, heads the cotton division of the Textile Research Department of American Viscose Corp. In addition to conducting research work at Marcus Hook, he has served as a consultant on manufacture of spun rayon and spun-rayon blends in many textile mills, and is regarded as one of the leading authorities on this subject.

HIGHLIGHTS: Proper Front-Plate Setting Will Prevent Neps—Long Staples Require Large-Diameter Drawing Rolls—Low Tension Necessary on Fly Frames—Roving Twist Should Be Less Than for Cotton.

II. Carding, Drawing, Roving

INCREASING POPULARITY OF SPUN RAYONS, and the trend toward longer staple lengths for use on the cotton system, have necessitated considerable development in carding. At the present time, relatively coarse deniers in lengths up to, and including, 2½ in. are being commercially carded on both the flat-top and the roller-top card.

When rayon staple fiber was first used in large quantities in this country, it was the consensus that the cards should be set in such a way that the removal of short fibers be negligible in amount, and that the principal function of the card was to convert the lap into silver form. However, many mills are now finding that better results will be obtained if the card is set and equipped so that a small amount of waste is removed. Although many mills still have solid licker-in screens, it is better practice to use regular perforated screens which allow the removal of a small amount of waste. The perforated screen also is of some benefit in controlling the proper balance of air currents.

The practice of using a very close front-plate setting for the purpose of eliminating the flat strips is not recommended. Rayon staple fiber, like any other fiber, contains some neps; and if no flat strip is removed, the resulting sliver is likely to be neppy. It is not necessary to remove a particularly heavy flat strip, but it is considered good practice to remove an even strip that extends the full width of the card.

WHY REWORK STRIPS? A question often asked is: When the strips are to be reworked, why remove them? The reason is that it is better to distribute this waste in small percentages with new stock rather than allow it to be removed suddenly from the front flat to the cylinder, and subsequently to the doffer, without time or space for further carding. A still better method would be to hold all flat strips until a sufficient quantity is on hand for making up laps composed of 100% flat strips. These laps can then be carded on one card, the front of which is not equipped with a calender roll or coiler head. The stock coming from the front of the card can then be returned to the picker room for blending with new stock. Strips from the second carding should not be used.

Carding fine deniers, such as 1 and 1.25, requires lower productions and often lower licker-in speeds. These fine staples should be carded with slightly increased flat speeds so as to remove as many neps as possible. It is also necessary to have fine clothing on the cards if good results are to be obtained. Card clothing, such as 110's and 120's, is essential for the handling of these fine deniers, and even finer clothing will improve the quality. Flat strips, especially on these types, should be removed, and not reworked.

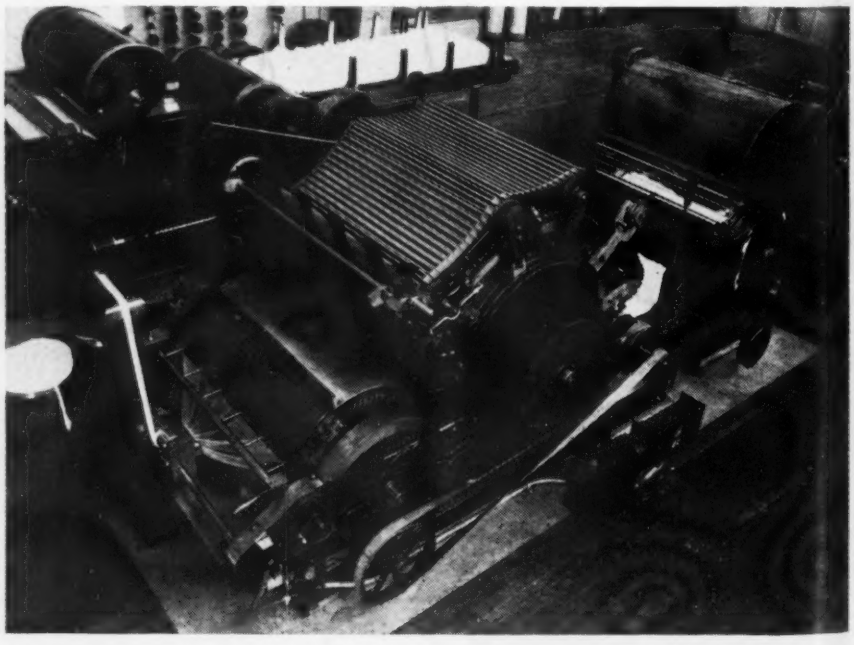


Fig. 4. Cards remove neps in addition to forming web. Modified roller-top cards (not shown) are recommended for longer staples and for wool blends.

Lon Cotton System

By FLETCHER S. CULPEPPER

CONSIDER DENIER ALSO. Successful carding of various lengths of staple fiber depends on considering both the denier and length, rather than length alone. Whereas 2½-in. staple can be successfully carded in a 3-den. type, it is not practical to card a 1.5 or finer denier in this length. Experimental results on 3-den. 3-in. and 5.5-den. 3-in. have been interesting, but these types are not commercially run at the present time. Further development work is being done on this longer length in order to obtain results that would be commercial and comparable to 2-in. and 2½-in. staple.

Modified roller-top cards are being employed in carding rayon staple fiber. These cards were designed primarily for the longer lengths and are capable of higher productions. The roller-top card should be ideally suited to the proper handling of blends of rayon staple and wool, particularly when using 3-den. and coarser staple.

Generally speaking, licker-in speeds should be slower than those used for cotton, since it is not necessary to do any cleaning. For normal lengths, such as 1⅜ in. and 2 in. on 1.5 and 3 den., a licker-in speed of about 375 r.p.m. is satisfactory; however, on the finer deniers, such as 1 and 1.25, it is a good plan to use speeds of about 165 r.p.m., since it is desirable to handle the fine fibers with greater care.

Special-type licker-in wire has proved to be of an advantage on rayon staple. One particular type in which the angle of the teeth has been reduced, has given especially good results. This wire is helpful in preventing loading, especially on the fine deniers.

For the shorter types of staples, such as 1⅜ in., the regular conventional type drawing frames with normal roll sizes are satisfactory. However, for the longer lengths of rayon staples, such as 2 in. and 2½ in., it is recommended that the new-type conventional drawing frames equipped with 1½-in. diameter rolls be used. These large rolls are particularly helpful in preventing undue licking and lapping-up. Also, the drafting is accomplished more efficiently.

Much care should be exercised in maintaining minimum operating tensions in the drawing frame, since slightly excessive tensions will result in a non-uniform sliver that can not be corrected in subsequent processes. Control of humidity is of great benefit in maintaining good operating conditions on the drawing frame. There should be no great difference in speeds from those normally used on cotton.

Since rayon staple is easily stretched, satisfactory settings are found to be approximately ¼ in. over the length of the staple between the front and second roll, increasing to ⅜ in. over the staple between second and third, and to ½ in. over between third and fourth.

FLY FRAME CHANGES. Fly frames of the conventional or long-draft type are quite suitable for the processing of rayon staple. There are some minor changes, however, that are necessary in changing over from cotton.

Since rayon staple requires from 25 to 30% less twist than normal-length cotton, it usually is necessary to reduce the over-all speed of the machine enough to compensate for the increased front-roll speed. Front-roll speeds comparable to those normally used for cotton are quite satisfactory.

Tensions should be watched carefully, as it is impossible to produce even roving with improper tensions. Incorrect tensions are not always so easily detected on the longer staple lengths of rayon, since the fibers tend to cling together better in the roving, even though the tension may be sufficient to cause stretching, whereas in shorter staple cotton, the ends would probably break.

In order to maintain correct tensions, much care should be exercised in the selection of the lay gear. Roving made from rayon staple lies closer on the bobbin than cotton. Gears that are correct for cotton are not necessarily so for spun rayon.

Under properly controlled conditions, cork or synthetic top rolls give good results on normal deniers. However, as in the case of drawing, leather top rolls are generally preferred for the processing of the fine deniers, such as 1 and 1.25.

HOW MANY PROCESSES? The question as to what type of fly frames should be used for various types of yarns often comes up. On 100% viscose staple yarns, results from long-draft (one-process) slubbers have been quite satisfactory, although close attention must be given to the set-up of these machines. The two-process system, a long or interdraft slubber in conjunction with a conventional type speeder, is quite satisfactory for all types of yarns including blends. However, for best results on blends, the three-process conventional roving system is still considered ideal from a quality standpoint, due to the extra amount of doublings, which materially improves blends. If the long-draft slubber is used on blends, then the opening and blending departments must be adequately equipped and operated, or the resulting yarn will contain fibers that are not unformly blended and the finished cloth is likely to be streaky.

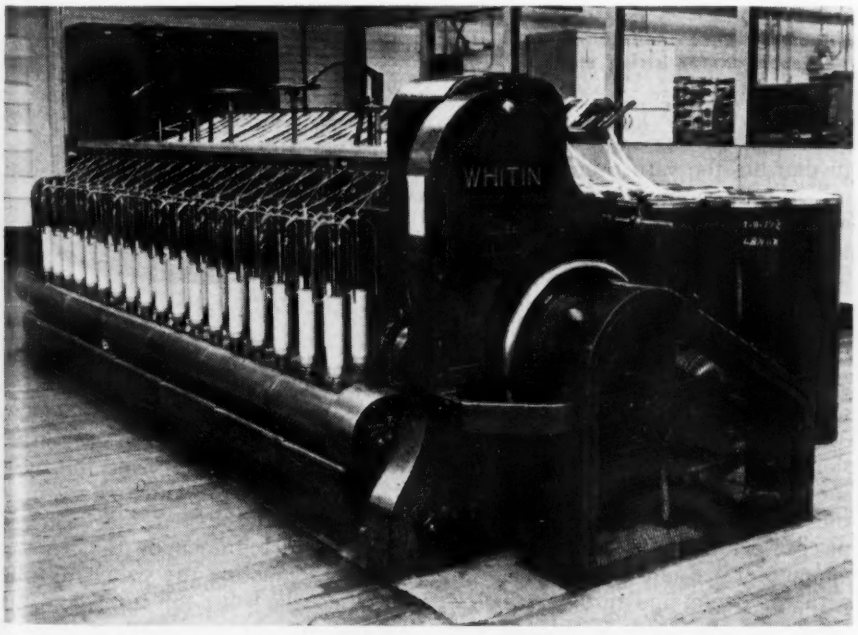


Fig. 5. Superdraft slubber pictured here, as well as regular slubbers, usually require 25 to 30% less twist for rayon than for cotton.

Single-End Method for SIZING NYLON YARN

HIGHLIGHTS: Size Is Applied 84°F. and 50% RH—Setting and Lagging Are Necessary—Oil Is Applied While Coning—Spindle Speed of 1250 R.P.M. Recommended for Both Operations.

By RAY C. PILLSBURY
Universal Winding Co.

SIZING NYLON and the subsequent operation of coning go hand in hand; one complements the other. All nylon yarns for knitting are sized in the single end, as are most warp yarns for weaving. The sheet-warp method of sizing warp yarn for weaving has met with some success, and it is probable that continued experimentation with this system will be made. Whatever the outcome, every indication bears out the contention that post-war nylon sizing will continue the single-end operation. Filling yarn for weaving is generally sized, but exceptions occur where this operation is omitted.

Size acts as a protective agent to nylon and must be applied so that it thoroughly surrounds the yarn in the capacity of a coating. This reduces the natural tendency of moving nylon to create static electricity, which in turn opens up the yarn, causing broken filaments. It is evident, therefore, that correct application of this size is of paramount importance.

Manufacturers of nylon furnish unsized and unoiled nylon on pirns holding approximately 1 lb. of yarn, and also on 4-oz. and 8-oz. spools. The spooled yarn has been redrawn by the nylon manufacturer and furnishes an excellent supply for the sizing machine, resulting in almost no breaks in sizing. Pirns contain unstretched nylon, and the broken ends will be lapped on them. If the yarn is used in the knitting trade, the throwster sometimes redraws this yarn from the pirn to a spool before he attempts to add hosiery twist to it on a twister. After twisting, the twister spool is used as the supply for the sizing machine, and the yarn should run off with a minimum of breaks. If no additional twist is to be added to the nylon, the pirn can be used as the supply for the sizing machine.

Fig. 1. Bakelite shells 6-in. in diameter are used on the sizing machine.

SIZING PRACTICES. Primarily, the operations involved in sizing consist in drawing the yarn overend from an underneath supply, through a tension attachment, over the sizing roll, through a reciprocating guide, and finally onto a 6-in. Bakelite shell.

Tension should be kept low and must be positively controlled from start to finish of winding, with fluctuations from the mean tension of not over 4 grams. The sizing machine is designed to give this result. Such tension as is necessary to control the yarn should be applied before sizing. Thus the tension attachment should be placed below the sizing roll. The amount of tension required will vary with the denier and turns per inch of twist, but the range should be confined within limits of 3 grams minimum and 14 grams maximum.

The arc of contact or amount of wrap which the yarn makes round the sizing roll should be 5° and should be definitely set with a special gage made for this purpose. The sizing roll turns in the direction in which the yarn is traveling, and the percentage of size pickup is determined by the amount of yarn contacting the sizing roll, the speed at which the roll turns, and the viscosity of the size solution. Nylon size PM-90 is almost universally used. Its chemical composition is 8% poly-

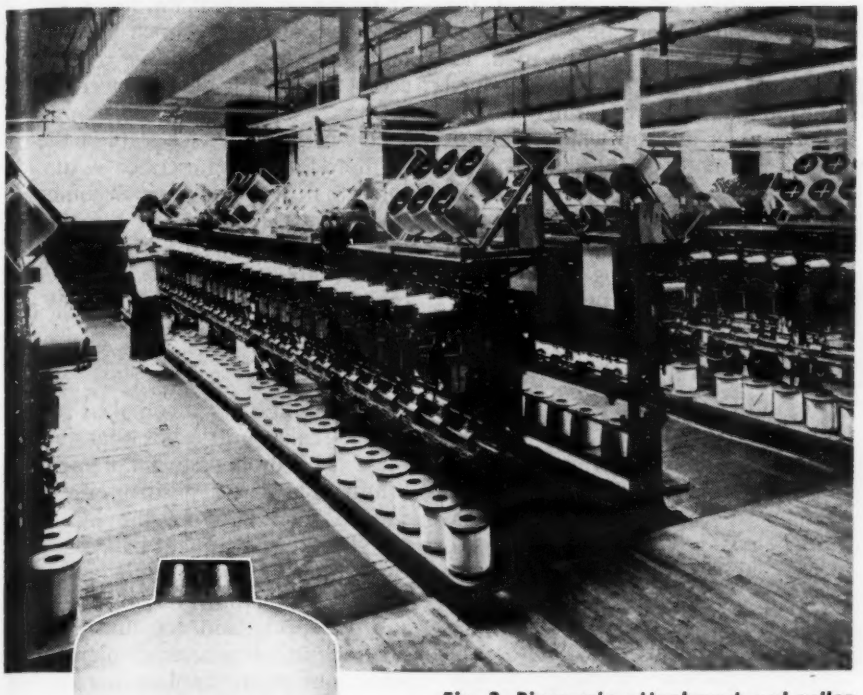


Fig. 2. Pineapple attachment and roller bail produce good nylon cones.

vinyl alcohol, 1.6% boric acid, and 90.4% water. Because the size solution contains approximately 10% of solids, and because the liquids dry up and leave only the solids, it should be clear that for every pound of size deposited on the yarn, 10 lb. of sizing solution will be taken from the sizing-machine trough. When the machine is adjusted to apply 4% of size, each 100 lb. of nylon yarn will carry 4 lb. of size solids, which is the residue of 40 lb. of the size solutions.

CIRCULATORY SYSTEM. It is necessary that the sizing solution be kept in constant circulation through the machine. For this purpose, a circulatory system of either stainless steel or glass piping must be installed for a battery of sizing machines, and the size allowed to flow by gravity through the sizing troughs and eventually return by a pump to a storage tank. The circulatory system should always be in operation even if the machines are stopped. The size will congeal if it is not kept constantly in motion and will be extremely difficult to clean out.

In addition, the circulatory system should be thoroughly flushed with water, and completely cleaned every two weeks. Viscosity of the size should be checked every 4 hr. and maintained at 115 to 125 sec. Saybolt.

The two points of contact which the yarn touches after leaving the sizing roll are the guide which directs it away from the roll and the traverse guide which leads it on to the Bakelite sizing tube. Both of these must be clean at all times and should, therefore, be removed after every doff of sizing tubes and cleaned, which is easily done with water.

SPEEDS. Nylon is finally delivered onto the Bakelite drum. A 6-in. starting traverse with four winds across the width of the traverse, with alternate lengthening and shortening of the strokes of the traverse guide, produces a tube with tapered selvages as seen in Fig. 1. These tubes can be used as a supply in the next operation of coning, without an intermediate redrawing operation. As much as 1 lb. may be wound on a sizing tube, but 8 oz. has proved an economical and safe unit. Accepted spindle speed is 1,250 r.p.m. This will develop yarn speeds of about 685 yd. per min. on the bare 6-in. tube; 700 yd. per min. at 6⅜-in. diameter, 8 oz. net; and 733 yd. per min. at 7-in. diameter, 16 oz. net. The sizing roll makes use of a reduction drive which allows a range of 4.9 r.p.m. to 26.5 r.p.m., depending upon a spindle speed of 1,250 r.p.m., as well as on the gears and sprockets used.

Air conditioning and temperature control are vital. A definitely established temperature of 84° F. and a relative humidity of 50% are required for the sizing room. Divergence from these figures must not exceed two units, plus or minus. If this is not followed, static will not be controlled, which will radically affect the nylon in subsequent operations.

LAGGING. After the nylon yarn has been sized and wound onto the sizing tube, it must be steamed in a steam box. Steaming will not only set the twist, but also will facilitate the ensuing operations through which the yarn passes. The amount of steaming time required will vary with the denier and twist and must be predetermined by trial. Nylon should be allowed a "lagging" period of from 12 to 24 hr. before it is removed from the sizing area. The operation of sizing will affect nylon to such an extent that it must be allowed to return to its normal condition before leaving the sizing room; hence the lagging period.

When the Bakelite tubes containing sized nylon are brought into the coning room, they must be allowed to stand or lag for at least 12 hr. before coning, thus allowing the nylon again to return to its normal state in the atmospheric condition of the coning area. The Bakelite sizing tube is an ideal supply for the coning machine. The yarn should not be redrawn to another package before coning as this will again disturb it.

CONING TENSION. Tension must be kept to the very minimum. Thus, yarn contact points on the coning machine are so designed that the nylon will create no excess friction in passing over them, yet the purpose of their guiding actions will be preserved. In terms of grams, the amount of tension varies little from start to finish of coning, but even this slight difference is vital. A tension of 6 grams should be registered at the start of winding, which should decrease to 4 grams or less at the finish. Whatever tension is registered at the completion of a cone should be only such tension as is generated by the passage of the yarn over the surface of the yarn on the sizing tube, as it delivers off the tube. This will be about 3 or 4 grams. Thus, the applied tension should be 2 to 3 grams at the start, diminishing to zero at the finish.

It is realized that different deniers and twist will require slightly different amounts of tension from that specified, but the same pattern should be followed.

Pineapple cones containing 8 to 12

oz. are standard. They are wound with a special nylon pineapple cone attached, which must have a free-turning roller bail, thereby minimizing tension and static; 2¾ to 3¼ winds across the package is good practice—3¼ winds is preferred.

The yarn should be wound with sufficient pressure to produce a densometer reading of 40 to 50 on the finished package. A 3° 30′ cone with a diameter at the base of the pineapple of 3¾ in. and a diameter of 3¼ in. at the nose will weigh about 12 oz. This is a regulation cone and should be wound with 12 to 14 oz. of pressure at the start of winding adjacent to the bare cone, diminishing to 4 to 6 oz. at the full cone. Pressure should be measured with a pressure gage, which is hooked into the top of the traverse frame back.

OILING NYLON. The amount of oil used varies with the purpose for which the yarn is intended but in general the percentages of oil and size are about the same. Adjustments are easily made to obtain the desired amount of oil pick-up by means of simple changes in the speed of the emulsion roll. There are several good grades of oil which may be used, information of which can be obtained from the manufacturers of nylon. The arc of contact or wrap which the yarn makes around the emulsion roll is 5°—the same as is used on the sizing machine. Again, the roll revolves in the same direction in which the yarn travels, thereby reducing tension. Roll speed can be varied as needed.

Manufacturers of nylon recommend a temperature of 76° F. and a relative humidity of 72% in the coning area. Many mills have installed equipment to keep air conditions within these limits. Such mills as have not done so may be faced with a static problem which will induce bad winding. It is strongly urged that reasonable adherence to the foregoing figures be maintained.

The coning machine may be safely operated at 1,250 r.p.m., which will develop an average winding speed of 285 yd. per min. for a pineapple cone base diameter of 3¾ in. or 312 yd. per min. for one with a diameter of 4⅛ in.

WOMEN LOOMFIXERS Relieve Labor Shortage

(*Continued from page 97*)

and limitations of tools as they are introduced. (For women fixers, necessary tools are generally furnished by the company.) Not too much should be taught at one time. For initial lessons, a loom should be mounted in a quiet, isolated part of the mill. At all times it is important to encourage questions and pertinent discussions. Only simpler operations should be considered at first, following a schedule such as suggested in the outline appearing in the accompanying box. On the more complex items, apply the principle of proceeding from simple to more complicated parts. This can well be illustrated by the following outline of initial instruction that would be required for item 8 of the suggested schedule. It can first be explained that "banging off" might be caused by the warp tension, as too much tension can raise the shafts when such force exceeds the pulling-down power of the springs. Thus the lower portion of the shed will clear the race plate of the lay by more than the prescribed ⅛ in. Result: (a) the shed may become too small for free passage of the shuttle, thus acting as a brake by pinching the shuttle and reducing its speed. This causes shuttle to enter box only partially and loom will bang off, or (b) the lower portion of shed being too high alters the course of the shuttle flight causing it to fly crooked so that it may strike shuttle box slightly sideways. This produces what is known as "shuttle slap," and again prevents the shuttle from entering the box completely with consequent banging off.

A similar outline can be given for leveling the harness, for adjustment of shuttle check, and for lining up of reed, shuttle-boxes, and picker rod. Then one might explain the relation of picking time to shed time followed by checking of entire picking mechanism. Next could come settings of picker shoes, picker balls, lug straps, and of the stroke of the picker stick. As is noted, a build-up from the most elementary causes to the more difficult is attempted. This should be done very gradually so that no confusion will result. Note that the cause for banging off due to a faulty operating magazine has been omitted purposely, as this can be rather complicated for the beginner. The same applies to the center filling fork and intermediate head motions.

It is recommended that twice a week these women fixers should be given at least two hours of technical training, when, by means of a blackboard and cloth samples, various defects and their causes and corrections can be analyzed. The women should be encouraged to make notes in the form of a reference book indexed in such a manner that they can use it quickly when occasions arise.

The work of the new fixers can be greatly eased by the colonization of looms and by the cooperation of other workers. Naturally the weaver can be of great help by stating his trouble as accurately as possible instead of simply saying: "Fix my loom!" The more detailed such information is, the quicker the loom can be in operation again, since, if the woman fixer realizes that the job is beyond her capacity, she can call for help promptly without first losing valuable time.

Perhaps a moral can be drawn from the remark about the women by one employee who said, "If they had spent as much time and trouble in training me, I'd probably be a super today."

Suggested Initial Program for Training Women Loomfixers

1. Discussion of general problems and safety.
2. Illustration and explanation of tools.
3. Explanation of working cycle of various loom parts.
4. Explanation of how various weaves are achieved.
5. Lining up reed and shuttle boxes.
6. Causes and remedies for cloth defects.
7. Preparation of supplies (pickers, binders, etc.).
8. Causes of, and remedies for, banging off.
9. Harness adjustments.
10. Filling tension and care of shuttles.
11. Lubrication; replacement of worn parts.

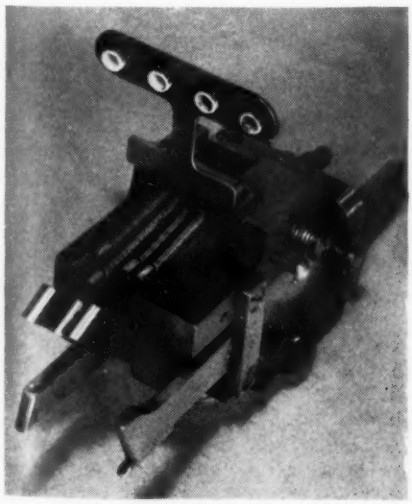
TEXTILE Equipment NEWS

MACHINERY AND SUPPLIES

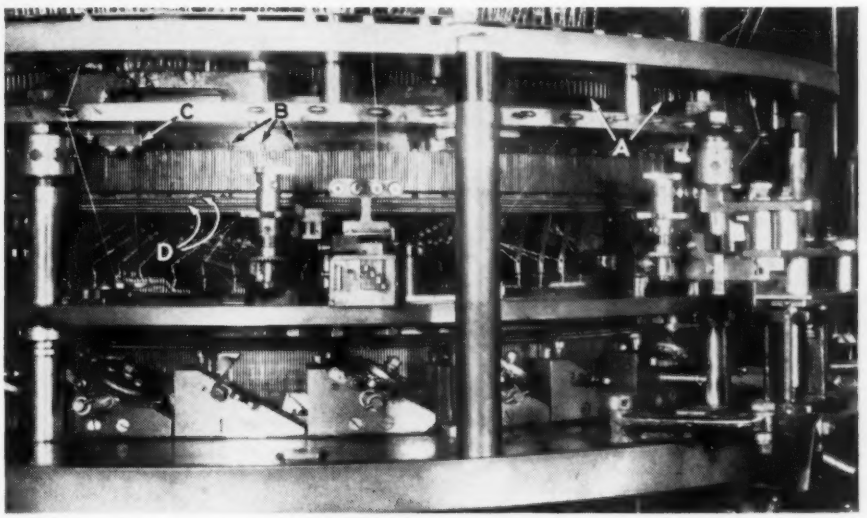
Wrap-Knitting Machine for Outerwear

The circular knitting apparatus for producing light-weight woven-effect fabrics with a combination of filling or horizontally-running yarns and an unusually large number of wrap, warp, or vertically-running yarns (page 123, February, TEXTILE WORLD) has created considerable interest, and many readers not familiar with wrap- or warp-knitting principles have requested information on certain fundamental features of the machine. The basic machine illustrated in February was developed and built by H. Brinton Co., Philadelphia, Pa., and is largely the same as one demonstrated by that company at the Philadelphia Knitting Arts Exhibition in 1939. A number of machines were built soon afterward, but priorities have limited production during the war.

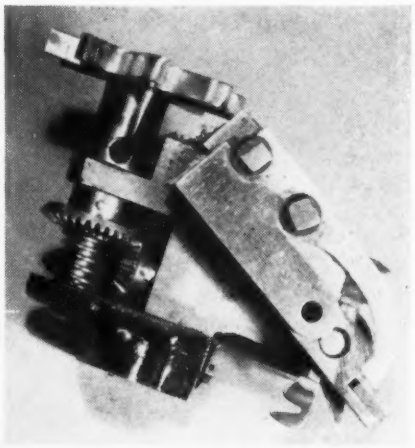
The set-up of the machine as described in February involves the use of regular full-length stitch cams at the wrap feeds to knit off the wrap stitches, rather than hold them for subsequent feeds, making possible the knitting of only one yarn to a stitch and reducing the bulkiness and weight of the fabric. The Kretser wrap-yarn spool rack is designed to accommodate a larger number of wrap ends without crowding. To date the greatest wrap-yarn capacity which has been incorporated in the machine is 400 ends for 1200 needles. It is believed that a shogging movement could increase the design capacity of the machine even further.



Four-color striper (Brinton)



View of wrap fingers and other knitting parts (Brinton)



Yarn clamp and cutter (Brinton)

To describe the wrapping process for the benefit of those who are not already familiar with this type of knitting, it is necessary to point out that, since the Brinton needle cylinder is stationary, the wrap-yarn spool rack must be held stationary also. The latter is mounted on the revolving cam ring, and therefore Brinton has provided the gearing shown at A in the upper part of the accompanying photograph, which serves in effect to turn the wrap cylinder clockwise as the cam ring turns counter-clockwise. Motion is imparted to this gear train by teeth on the inner circumference of a large circular gear mounted on the revolving cam ring.

The wrap fingers *B* can be seen in the slots of the wrap cylinder just below this gearing. Each finger is pivoted at a point approximately half way along its length, against the back of its slot. The wrap cams (one of which is shown at *C*) push the upper tip of the finger backward in order to force the lower tip, holding the yarn, forward between the needles. The finger is a flat strip of steel, but the lower tip is so turned or twisted that the needle deflects the finger to one side as it is pushed forward and to the other side as it is pushed backward. In this way the finger leaves its yarn wrapped around the needle ready to be formed into a stitch. Coiled springs *D* around the wrap cylinder serve to hold the wrap fingers in the slots and keep them tilted away from the needles when not in use.

As explained in February, certain feeds are selected for wrap knitting

while others are selected for regular knitting with the use of stripers or yarn changers. The latest Brinton striper is illustrated herewith. It has been refined in some respects as against earlier models, but its principles of operation are the same as heretofore. In other words, links of varying height on the pattern chain of the machine serve to so raise or lower the bob-plate cam that it strikes the correct lever and feeds the particular yarn called for by the pattern.

Also illustrated is the latest Brinton yarn clamp and cutter, one of which accompanies each striper to hold and sever the yarn after each change. Here also the principles are not new, but again for the benefit of those readers not familiar with this type of knitting, it should be explained that the yarn travels down over the curved guide, is caught by the revolving hook and carried into a clamp, while the revolving knife blade, which closely follows the hook, cuts it .

Automatic Feed for Woolen and Worsted Cards

Development of a new automatic card feed of greater accuracy, has been announced by Proctor & Schwartz, Inc., Seventh St. & Tabor Rd., Philadelphia. This feed, Model No. 535, is the result of collaboration with Bigelow-Sanford Carpet Co., in an attempt to produce an accurate feed for feeding stock to woolen and worsted cards, as well as the garnetts that is practically automatic in operation.

The feed is equipped with a motor drive which has an electrical control operated by a mercoid switch that rests against the end of the scale arm. As soon as the scale pan receives its weighing, the end of the beam rises and the mercoid switch falls forward. Instantly the current is cut-off from the motor, causing the spike apron to stop.

This drive eliminates all mechanical clutch mechanisms which have, in times past, required a great deal of replacement and constant attention in feeders.

The trap door over the scale pan operates in conjunction with the electrical control, by means of a solenoid, and a spring mechanism. When the motor current cuts-off, the solenoid is de-energized so that the spring snaps the trap shut, holding any surplus stock so that it does not get into the scale pan to cause variations in the weighing. This surplus stock drops into the scale pan when the next weighing starts. The latest type of trap motion uses a pair of flat gates which are more suitable for most kinds of stock than the revolving gate, which was originally put on this type of feeder.

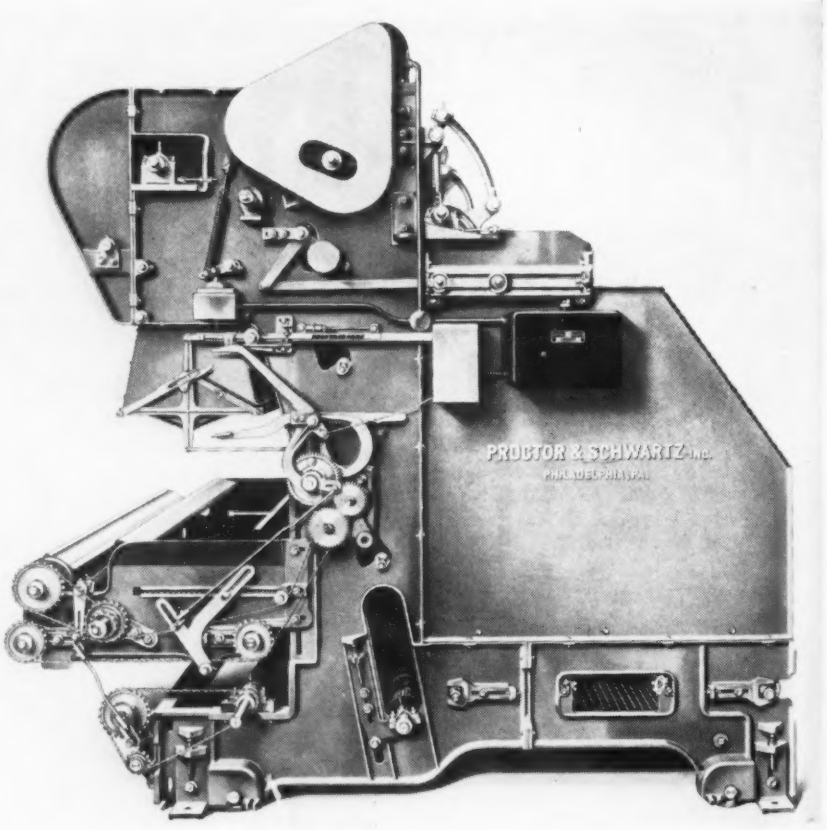
The weight of the mechanism on the scale arm has been greatly reduced, which increases the sensitivity of the scale mechanism. This has been done by carrying the weight of the box forming part of the scale motion directly on the frame of the feeder with only the two bottom leaves of the scale pan hanging on the balance arms. These leaves and the castings to carry them are made of aluminum and the result of this change has been that the weight of the scale arm is now only 8 or 9 lb. instead of the 35 or 40 lb. which was formerly supported by the scale arms of most of the older types of feeders.

A new compensating device is located in the hopper. This is essentially a rack on a carriage which is pulled toward the spike apron by a weight and lever mechanism, creating a constant pressure on stock in this compensator against the spike apron. This results in the spike apron being fed an even amount of material, regardless of how much stock is in the hopper. The box may hold as much as 100 lb. of stock, but if there are only a few pounds left to run, most of this stock will automatically work up into the compensator rack and the scale pan weighings will continue to be uniform right down to the last two or three pounds, without requiring attention from the attendant.

Other mechanical improvements have been made on this machine, such as the use of improved types of combing mechanisms, both in the hopper and on the delivery side of the spike apron. There are several types available to suit different classes of stock. Also the regular types of beaters are available. The newest one of these is a receding pin stripper motion which is particularly suited to long stock and to feeders which require a large number of strokes per minute to properly strip the stock from the spike apron. The feed is equipped with oilite bearings throughout.

Industrial Thermometer

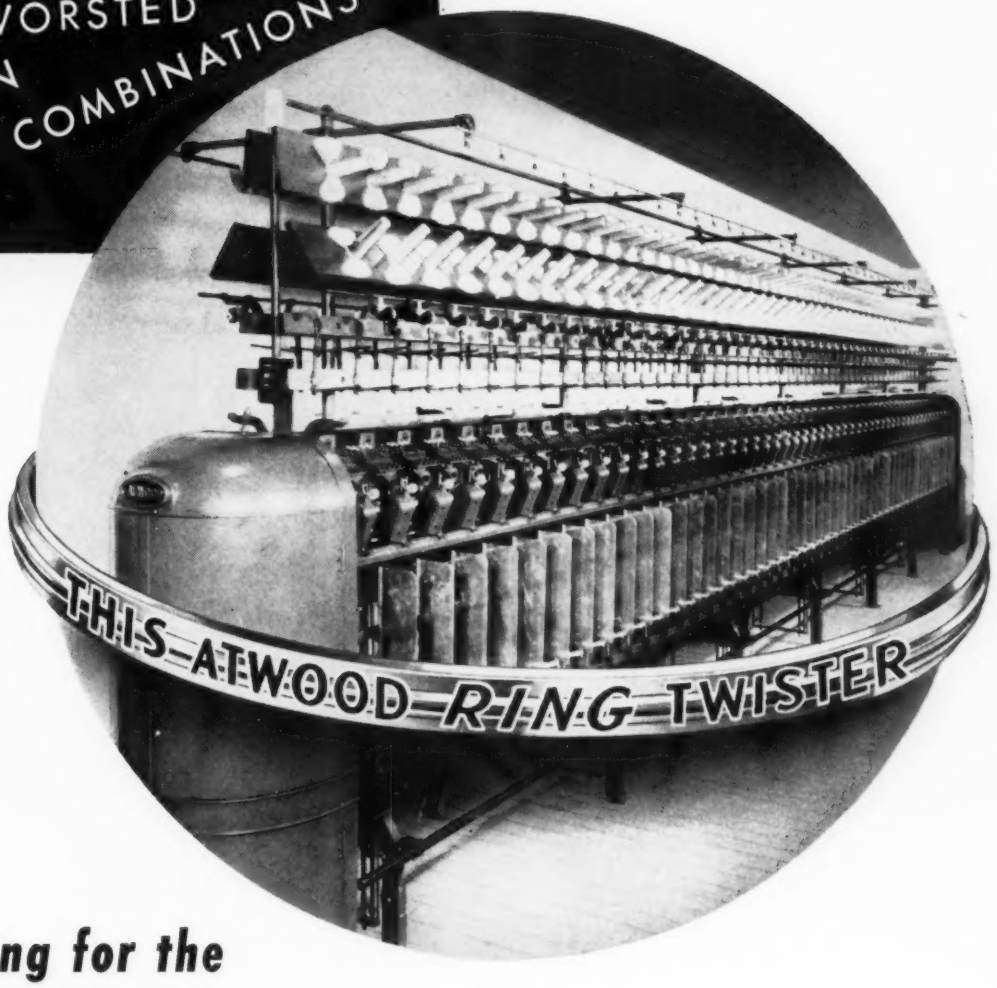
Plastics and malleable iron form the case for a new industrial thermometer, produced by C. J. Tagliabue Mfg. Co., Park and Nostrand Ave., Brooklyn, N. Y. A yellow-back, lens front, thermometer tubing is of assistance in reading since the yellow background offers the best color contrast with mercury. Malleable iron has been found to be a satisfactory substitute for brass, as formerly used.



New, accurate automatic card feed for woolen and worsted cards (Proctor & Schwartz)

FOR *Yarns* OF

COTTON WORSTED
RAYON NYLON COMBINATIONS
SPUN RAYON



is waiting for the word "GO"!

The Atwood "5B" Ring Twister has already passed its field tests with flying colors. It has proved its ability to produce clean, accurately twisted, uniform yarns of virtually every character and combination, and do it with an efficiency and economy that will set new and higher postwar production standards.

The Atwood Ring Twister handles from 2 to 12 ends — delivers from cakes, cones, bobbins or tubes — produces any desired twist from ½ to 70 turns per inch, on any size package up to 5 inch diameter, 9 inch traverse.

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Mill Maintenance TO KEEP 'EM RUNNING

Saving Steam on Low-Pressure Heating

Low-pressure heating offers a fertile field for checking to prevent fuel waste, according to an article appearing in a recent issue of *Armstrong Trap Magazine*, published by Armstrong Machine Works. The obvious faults such as building insulation and combustion inefficiency are easy to see and correct, but hidden deficiencies such as poor trapping may waste thousands of dollars worth of fuel in a large building without being noticed.

Some things that should be checked for steam savings are listed below:

1. Proper zoning and controls will save fuel in buildings where sections or floors do not require the same temperature, or are shut-off for periods, or where some floors have to be heated to 76° to maintain 66° on higher floors.

2. On one-pipe heating systems quick vent valves should be placed on the top of high risers, and all air valves should be checked for efficiency. Radiator air valves are likely to cause trouble unless they are of highest quality.

3. Steam traps that will handle both condensate and air should be installed at the bottom of steam risers, to prevent water hammer, and slow heating. Steam traps of the inverted bucket trap type are miracle workers in this respect. The presence of considerable condensate in steam lines causes water hammer and probable damage to piping or appliances. These traps speed the flow of pure steam to radiators, convectors, unit heaters, coils and similar heating members, because they quickly get rid of condensate and air, but close tight when there is nothing for steam savings are listed below: but steam in the steam riser, thus preventing steam losses.

Preventing Machine Breakdown

MACHINE BREAKDOWN REPORT

Date.....

Name and Type of Machine.....

Tool No.....Serial No.....Location.....

Breakdown Occurred. Day.....Date.....Time.....A. M. / P. M.

Operation Being Performed.....

Operator .....Clock No.....

Length of Service With Company.....

On Present Job.....

Foreman.....Clock No.....

Description of Breakdown.....

.....

.....

.....Estimated Repair Costs $.....

Estimated Down Time .....

How Did Breakdown Occur?.....

.....

.....

.....

Was Operator Properly Instructed?.....Yes.....No.....

Did Operator Fail to Follow Instructions?.....Yes.....No.....

Did This Machine Ever Show Signs of Possible Failure?..Yes.....No.....

If So, Was This Condition Reported to the Maintenance Dept.?

Yes.....No.....

If So, Was the Request to Repair Made Verbally or in Writing?.....

What Has Been Done to Prevent Similar Breakdowns?.....

.....

.....

.....

Foreman's Recommendations .....

.....

.....

.....

Investigated by..... Foreman.....

(Signed) (Signed)

The machine breakdown report illustrated not only goes far towards determining factors in breakdown, but impresses the personnel with the importance of taking every precaution to avoid conditions which result in production loss, according to an article appearing in* The Allis-Chalmers Operation and Maintenance Review *for Nov.-Dec. 1943.

Reducing Fluorescent Lamp Cleaning Costs

With proper maintenance, the average plant can obtain at least one-third more light than with conventional maintenance methods, and without any additional purchases of critical materials, power, or lamps, according to a bulletin recently issued by General Electric Co.

It has been estimated that one man, working continuously, can clean and relamp fluorescent reflectors that provide light for approximately 360 workmen. If the increased light which the maintenance man provides, through cleaning and relamping, increases the personal effectiveness of these 360 men only 0.28 percent, the maintenance man's time has been accounted for.

Lighting maintenance consists of replacing lamps, cleaning lamps and reflectors, and maintaining proper voltage conditions. When the cost of maintenance is properly considered in relation to the cost of the entire installation, it will be found that frequent cleaning of reflectors is the most economical method of obtaining higher-than-average light output.

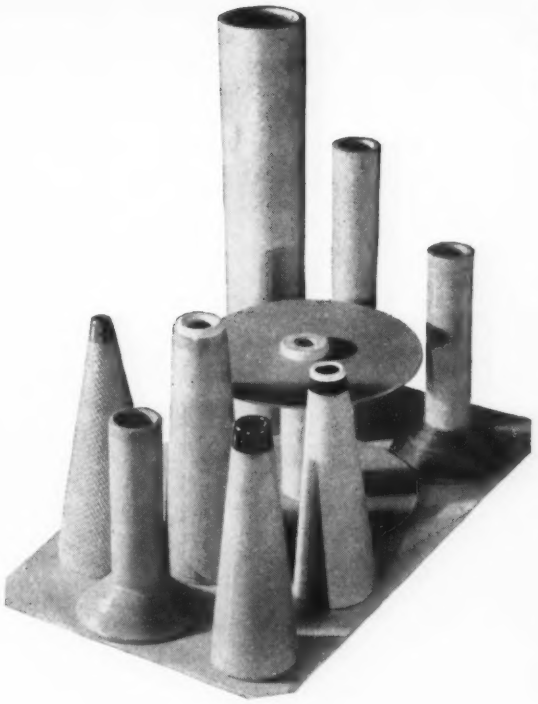
The accompanying chart was developed to determine the most economical periods for cleaning at various costs per cleaning. After a mill determines its cost of cleaning a reflector, the

FREEDOM OF *Opportunity*

This Freedom transcends all others. If we have it we have all other Freedoms automatically. It has been facetiously said that a man in jail has Freedom of Religion, Freedom of Speech, Freedom from Fear and Freedom from Want.

For two hundred years this country has stood for "opportunity" for every man from the cradle to the grave.

The history of SONOCO Products Company is an example of that kind of freedom... Given that same freedom for another forty-five years in a land where all business, large or small, is invited and encouraged to continue its development and progress unhampered by regimentation, the future of America can be read in the stars.



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A CRITICAL NEED

SAVE WASTE PAPER

BUY MORE WAR BONDS

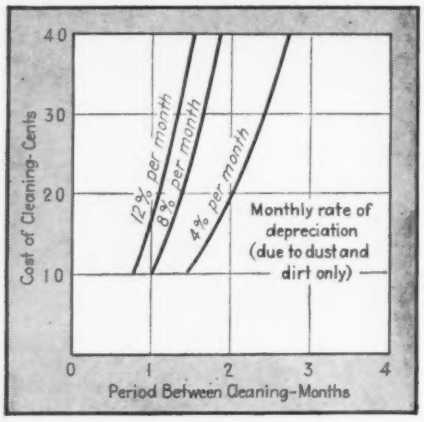


Chart shows relationship between cleaning costs and most economical cleaning period.

period between cleaning is easily found after estimating the monthly rate of depreciation caused by dust and dirt only.

For example, if a textile mill finds that it costs $.20 to clean a reflector and is allowing 4% per month depreciation for dirt and dust, the most economical cleaning period may be determined as follows: Follow over the $.20 horizontal line on the accompanying chart until it meets the 4% per month curve. A vertical line dropped from this intersection point will indicate that the period between cleanings should be a little over two months.

Adjustment of Traverse Bar

Regular checks should be made to see that the traverse bar is operating correctly on a 50 winder, according to Universal Winding Co.

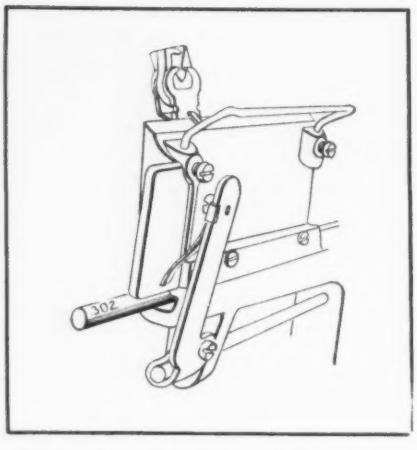
A test bar should be threaded into the traverse slide to locate the winding point properly on the container. This is accomplished by placing a piece of carbon paper between the empty cone or tube button guide. If the smudge left when the carbon is pulled out is just below the V in the guide, the delivery point is correct.

Next check the traverse bar as follows:

The clearance between the traverse bar and traverse bar seat should be .002 in. to .003 in. After moving the traverse thread guide to its rear position by rotating the cam, insert a new traverse bar between the traverse frame and the traverse frame back.

Loosen studs of traverse frame back and bring traverse frame back down evenly on the new traverse bar and tighten studs. There is enough adjustment in the holes in the traverse frame to allow an adjustment of .010 in. to compensate for any wear in the traverse bar that may develop because of operation.

When all adjustments are taken up, and the play between the traverse frame and the traverse frame back and bar exceeds .006 in., the traverse bar should be replaced.



Thread bar into the traverse slide to locate the winding point properly.

DYES & CHEMICALS — PRODUCTS & PROCESSES

Napping Assistant

Development of Nopco Nap, a new compound formulated to aid in the napping of fabrics, has been announced by National Oil Products Co., Harrison, N. J. It is stated that Nopco Nap will impart a high degree of softness and loft to napped goods, and at the same time help to overcome tendering, because it enables the fibers to yield to the action of the napper without being pulled out or broken. It is particularly recommended for lightweight constructions and mixed stocks of low serrative power. Nopco Nap is said to be equally effective on camel's hair, wool mixtures, cotton, rayon, and other synthetic fibers. It is suitable for use on velours, velveteens, doeskins, blankets, flannels, and fabrics of similar character. It is not specifically recommended for use on white goods. Its use will not impart an oily feel or odor to the goods. Another advantage frequently attributed to the use of Nopco Nap is that it reduces static and fly during napping.

Mildewproofing Agent

A new mildewproofing agent, known as USR Fungicide No. 3, has been developed recently by Naugatuck Chemical Division of United States Rubber Co., 1230 Sixth Ave., New York. USR Fungicide No. 3 is a non-toxic, non-irritating organic chemical containing no metals. It is insoluble in water and aliphatic hydrocarbons. It is slightly soluble in alcohol and aromatic hydrocarbons. The solubility is increased to a great extent in ketones, amines, and ether-alcohols. The new compound can be applied to textile fabrics by either solution or aqueous suspension. The finished material should contain 1% by weight of USR Fungicide No. 3; e.g., in using the solvent method the fabric is impregnated in a 1.5% solution of USR Fungicide No. 3 for about 2 to 3 sec. and then allowed to dry. Drying can be carried out either at room or elevated temperatures. Where the use of mineral solvents is desired, it is recommended that the USR Fungicide No. 3 be dissolved first in Cellosolve and then added to the mineral solvent. For use in aqueous suspension application, a bath containing 2.5 to 3% solids is recommended. The fabric should be immersed for about 30 sec. passed through squeeze rollers, and dried at normal or slightly elevated temperatures.

Self-Emulsifying Oil

Development of propylene laurate, a non-hygroscopic, self-emulsifying oil is announced by Beacon Co., 97 Bickford St., Boston. This oil is completely dispersible in water (forming milky emulsions whose viscosity can be controlled); is miscible with alcohol, polyhydric alcohols, glycerine, glycol, hydrocarbons, solvents, oils, etc.; is non-toxic, and is practically odorless. Its tendency to retain moisture is said to make propylene laurate of particular interest in connection with its use as a general emulsifying agent for use in most textile plants.

BARNES STRAPPING FOR STRENGTH and RESISTANCE TO HEAT-OIL-STRETCH

Fully up to the high standard of our famous belting and textile aprons is our outstanding line of textile-mill strapping. For lug, harness, check, and picker straps we offer a choice of specially processed Hair-On leather and plain leather. Both types are specially treated to meet the requirements of the particular function they are expected to serve. All Barnes straps are made from prestretched leather.

At the right is shown one of our many straps—the Barnes Gam-Oil lug strap—which typifies the high quality of our complete line. Our lug straps, which are supplied in from two- to five-ply thickness, are formed to fit the pickerstick accurately. They are treated with a special preparation and allowed to set properly before shipment so that they will be resistant to heat and oil. Barnes lug straps will withstand the most powerful throw of the shuttle, at the same time reducing noise and prolonging the life of the pickerstick. These straps are slotted to exact specifications. Many tests have shown Barnes lug straps to last from two to four times as long as any leather substitute.

Below are shown some of our more common textile straps, such as binder, bunter, power, harness-roll, jack, bumper, and top-roll straps. Also shown is a friction disc. These products only typify our complete line. We are prepared to supply any strap a textile mill can use. You may confidently call on the Barnes Textile Leather House to fill your complete requirements—promptly, efficiently, painstakingly.

HAIR-ON (G.O.G.) HARNESS STRAPS

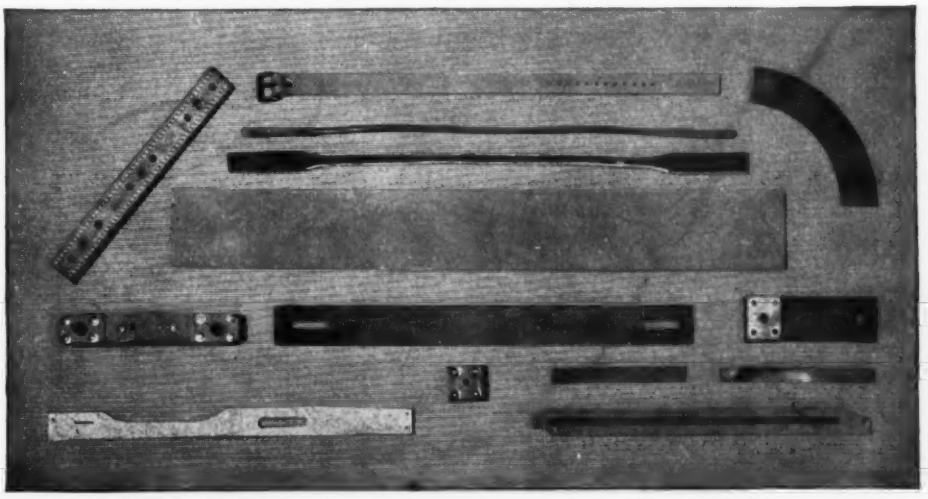
For maximum wear
Resistant to oil and heat
Cut from Firm First Quality Center Stock
Uniform in thickness
Flexible-minimum stretch
Processed round or flat
Punched to specifications
ALL SIZES

HAIR-ON (G.O.G.) LUG STRAPS

An Alternate Choice to Gam-Oil
Minimum stretch
Wax-thread stitched
Slotted to specifications
2-ply Hair-on
3-ply Hair-on
ALL SIZES

HAIR-ON (G.O.G.) CHECK STRAPS

Resistant to oil and heat
Cut from Firm First Quality Center Stock
Minimum stretch
Slotted to specifications
3/16 inch or Two-Ply ¼ inch
ALL SIZES



BARNES OAK HARNESS STRAPS

An alternate choice to Hair-on
Cut from Firm First Quality Center Stock
Processed round or flat
Punched to specifications
AVAILABLE IN ALL SIZES

GAM-OIL LUG STRAPS

For maximum wear
Resistant to oil and heat
Prestretched
Wax-thread stitched
Saves pickerstick
Reduces noise
4-Ply regular
5-Ply regular
5-Ply Heavy
ALL SIZES

BARNES OAK CHECK STRAPS

Cut from Firm First Quality Center Stock
Prestretched
Slotted to specifications
3/16 inch or Two-Ply ¼ inch
ALL SIZES

HAIR-ON MINERAL TAN (G.O.G.) GAM-OIL PICKER STRAPS

Oil resistant
Cut from Firm First Quality Stock
Pliable
Minimum stretch
Furnished either dry or oily
ALL SIZES

HENRY K. BARNES COMPANY • SALEM, MASSACHUSETTS

BARNES THE Textile Leather HOUSE

SINCE 1876

Where unusual knowledge of Leather is combined with long years of Textile experience
APRONS—BELTING • FLAT • ROUND • & ACCESSORIES—STRAPPING

Kinks AND SHORT-CUTS

A $25 WAR BOND FOR YOUR IDEA

A $25 War Bond will be awarded each month for the most useful "kink" published in this department. This contest is open to all readers of TEXTILE WORLD, and there is no limit to the number of entries any one person may make.

Contributions must be received not later than the last day of the month to be eligible for the award for the second succeeding month. Items may pertain to production methods, mill engineering, safety, cutting costs, improving quality, speeding up production; in brief, any little device, stunt, kink, or short-cut which you have tried out in your own mill and which you believe will be helpful to other mill men. Items should contain sufficient detail to permit other mill men to utilize the ideas in their own operations. Previously published material is not eligible for the award. Judges of the contest are the editors of TEXTILE WORLD.

TEXTILE WORLD shall have the right to publish any items submitted. Items which are accepted will be paid for at our regular rate for this type of matter with extra payment for appropriate sketches or photographs. The sketch you submit need not be a finished drawing.

In writing to this department, give your real name and address as evidence of good faith and to permit payment for items accepted. Your identity will not be published unless you give permission.

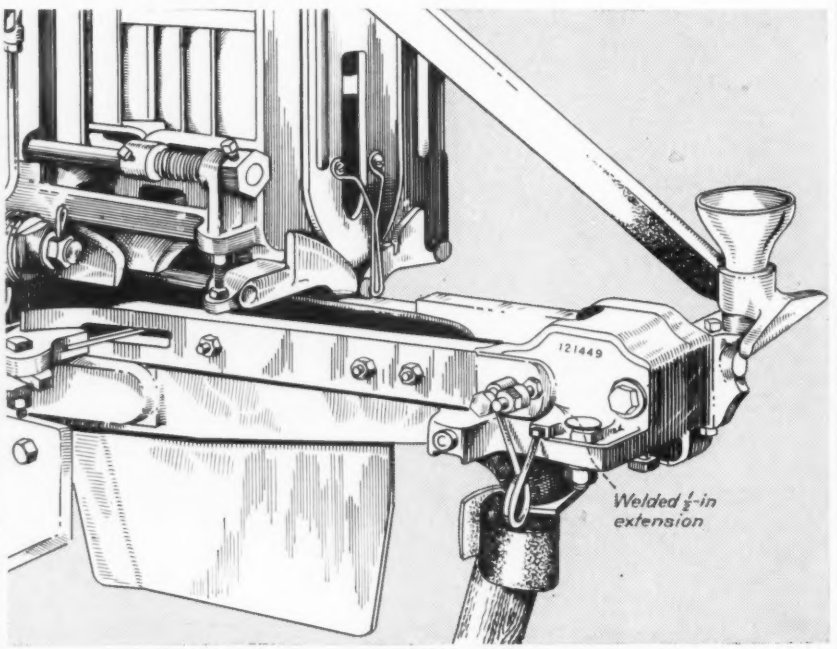
Contributions should be addressed to: Technical Editor, TEXTILE WORLD, 330 West 42nd St., New York 18, N. Y.

★ **THIS MONTH'S PRIZE WINNER**

No Bending Needed For Floating Binder

We have developed a floating binder that does not require bending and that lasts almost indefinitely. It can be put on the plain end of an intermediate loom for a total cost of less than $4. Binders, such as shown, have been used for 18 months, 2 shifts a day, and they appear as good as the day they were put on.

To make up the floating binder, first remove the old binder, stud and spring. Then weld a ½-in. extension on the end of the binder, as shown in the illustration. Drill and tap the casting on the lay end (without removing it from the loom) and then mount the spring to the casting and binder in a vertical position. Note that the spring tension can be adjusted. The binder is held in place by a ⅜x2¼-in. capscrew, which allows a little horizontal movement but none up and down. This kink has been tried successfully in several mills.—Evariste J. Pepin, *Lawrence, Mass.*



Method of changing binder into one of the floating type.

Rayon Soaking Improved By Platform and Hoist

Soaking rayon was undoubtedly the most unpleasant job in our throwing plant up until the time we installed a platform and hoist system, as shown in the sketch on next page.

The procedure, formerly, was to drop 50 3-lb. bundles of rayon into the tub at the beginning of the soaking period and then to fish them out 30 min. later. This latter part was most unpleasant, and was not helped by a bath temperature of 130° F., which is

(*Continued on page 130*)

"Richy"

His father was a wealthy corporation lawyer. That's why the kids dubbed him "Richy." Far from being a poor-rich boy, "Richy" was a rough-and-tumble kid, the hottest ball player in the club. He ruined enough expensive clothes a year to clothe the whole gang. "Richy's" slightly gone to flesh now. As chairman of the board of a bank and director of at least 25 corporations, his income runs into 6 figures. But "Hi, Richy" opens the session when anyone of the old gang seeks his advice.

Let Kaumagraph help you plan a friendly personality like "Richy's" for your business. Kaumagraph Dry Transfers, Prestomarks, Seals and Labels provide safe, attractive, certain, economical identification, decoration, information on any texture, any surface — textiles, leather, rubber and all sorts of synthetics.

Include these laboratory-tested, war-proven Kaumagraph Products in your identification plans. Send for a Kaumagraph Identification Man today.

EMBOSSED SEALS
Kaumagraph designed and produced Embossed Seals give the added touch of quality that makes a distinguishing impression on customers . . . increases counter appeal and saleability.

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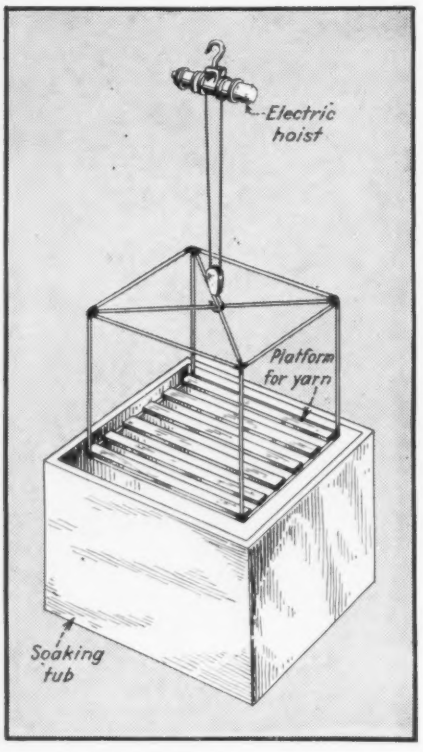
KINKS & SHORT-CUTS

(*Continued from page 128*)



Platform and hoist speed soaking.

too warm for the comfort of the person doing the job. Consequently the labor turnover here was so high that in one six-months' period we lost an average of a man a month. We estimate that the cost of the platforms and hoist for 3 tubs was less than the total training cost of one new man.

It was not until after we made the change that we found that it enabled us to control our soaking time closer than ever before. With the old system, the bundles that were put in the tub first came out last and actually were in the bath several minutes longer than those bundles that were put in last and taken out first. The platform and hoist reduces the time differential to a minimum.

Initial tests show, further, that this arrangement is excellent for soaking rayon cakes.—(K-165)

Bobbins for Loom Equipped With Electric Stop Motions

Textile mills, especially those weaving rayons on looms equipped with an electric stop motion requiring metal fingers on the bobbin for electrical contact may find the following modified bobbin useful in emergencies. If the metal fingers on the bobbin becomes loose and drops off and cannot be replaced, or if the supply of this type of bobbin becomes low, the following operations may be handled in the machine shop to produce a substitute bobbin.

Machine shops having metalizing equipment may spray an ordinary wooden bobbin with a tin-lead alloy. The entire bobbin may be sprayed or only a band at the bobbin base may be added so as to be placed in the same relative position as the metal fingers. The metal alloy will complete an electrical circuit.—(K-172)

Simple Change Prevents Tendering Print Fabric

A simple change in sequence of operations which prevents tendering of rayon fabrics that have been discharge printed is described in a recent issue of the *Ciba Review*. Briefly, the story is as follows:

A large printworks was greatly troubled by the frequent but irregular appearance of tendering in printed rayon fabrics dyed with direct or diazo colors and discharged either with white or vat-color discharges. At irregular intervals of time, the printed portions of this fabric would be observed to be rotten. Parallel tests, in which white material was printed with the same printing colors, showed no occurrence of this fault.

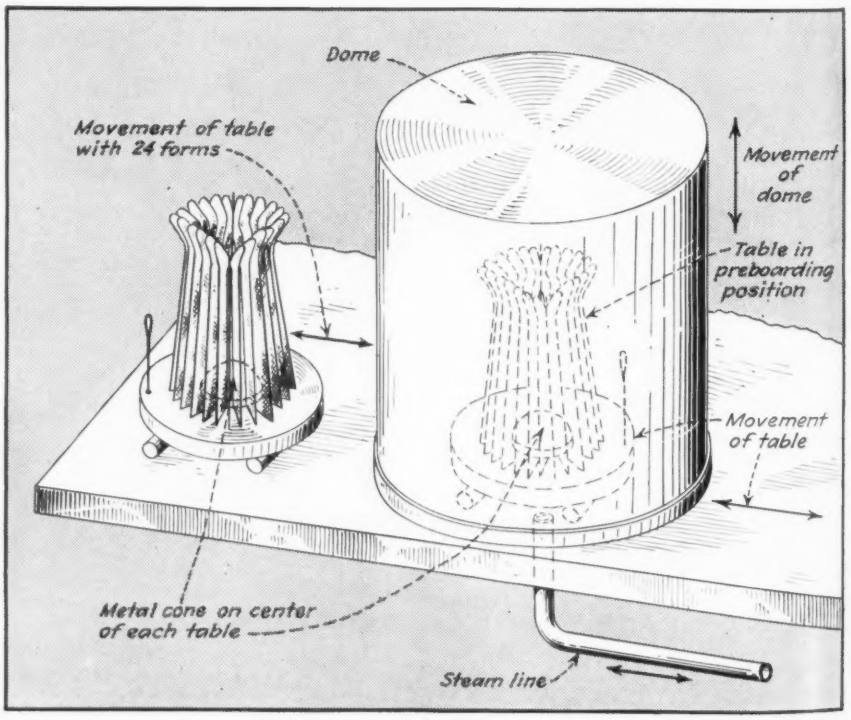
This particular style was processed in the following manner: The fabric, dyed on a reel machine, was printed with the discharge. After printing and dyeing, in order to avoid the formation of doctor streaks during ageing, the goods were padded on the printing machine with a weak solution of sodium m-nitrobenzenesulphonate and gum tragacanth, dried, and then aged as usual.

Examination of the damaged material proved the absence of oxycellulose in the tender spots. Alteration of the scouring process, use of other thickening agents, and replacement of sodium m-nitrobenzenesulphonate by other products, all failed to prevent occurrence of the fault.

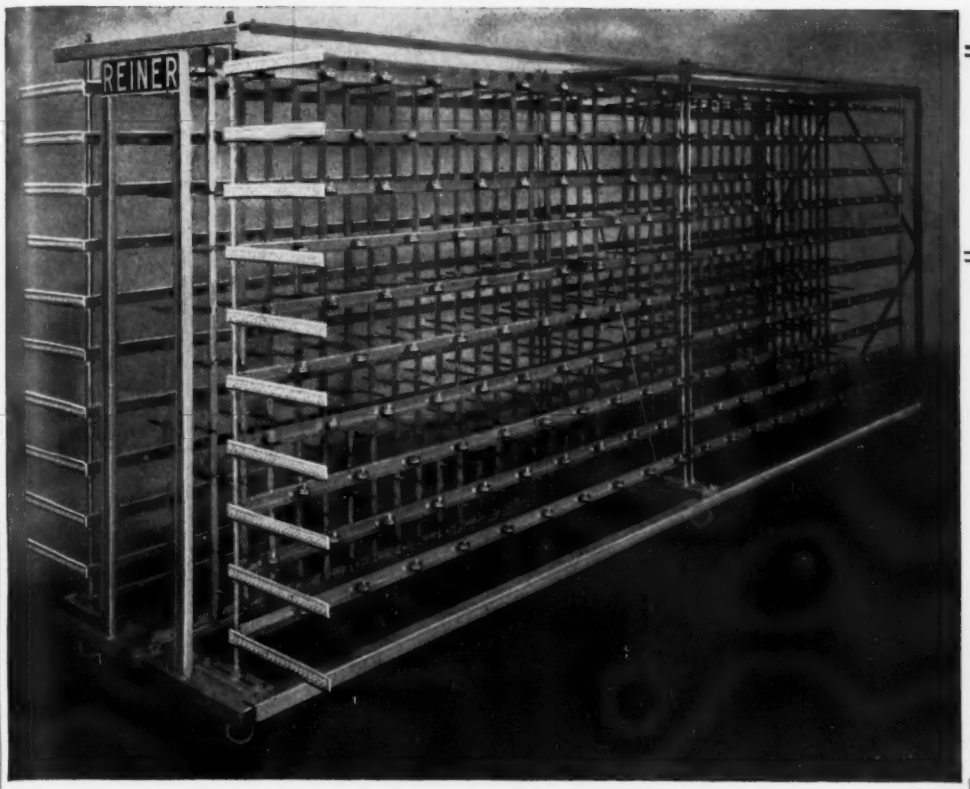
The pieces were, therefore, examined thoroughly after each operation. It was discovered that patterns which were taken at the printing machine and washed without ageing never showed tendering. Also, goods which were printed and steamed proved to be quite strong. On the other hand, goods which were subjected to padding after printing and before ageing proved to be tendered. Microscopic examination of the damaged portions showed the fiber to be completely flattened in the printed places, and it was observed at the printing machine that these places wet out much more rapidly during padding than the unprinted ground.

It was easy to draw a conclusion from these observations: the threads of the material were sharply bent by the engraving of the printing roller and were set in this bent condition by

(*Continued on page 132*)



Metal cones protect hosiery from condensate splashes. ***(See article on page 134)***



We carry an ample reserve supply of replacement parts for all REINER equipment now in textile mill operation.

JACK CREEL

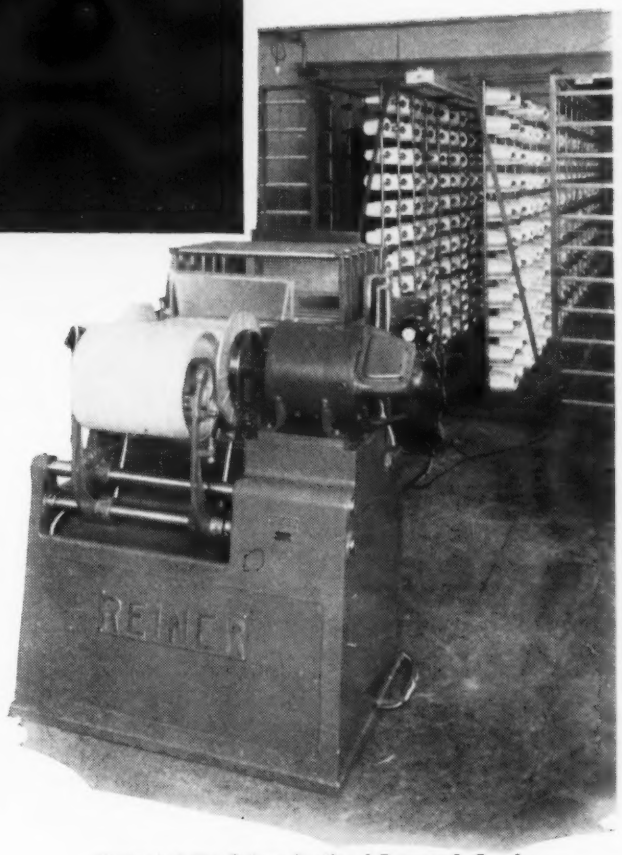
400 End—About 16 ft. long by 5 ft. wide by 7 ft. high

CREELS BUILT IN SECTIONS AND IN ANY LENGTH

This small unit allows drawoff over end for cotton, woolen, worsted and rayons from either paper or wooden cones (8.25 cone pitch) or spools.

The Jack Creel is built 10 cones high staggered. It is equipped with heavy duty spindles, special cone holders, chrome plated Disc Tensions, porcelain eyelets in the front frame and with or without electrical stop motion. Mounted on casters, the Jack Creel is easily movable.

We are in a position to build warpers and creels subject to priority rating. Write for more complete information.



Illustrated the Reiner Sectional Beamer & Creel.

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The Reiner line of textile equipment. For 40 Years it has represented the highest standards of quality and performance.

- Full Fashioned Hosiery Machines
- Auto Heelers
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- High Speed Warping Machines (Full Width and Sectional)
- Magazine Creels
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- Thread Tensions (Counterbalanced & Disc)
- Kay Loom Machines
- Raschel Machines
- Automatic Embroidery Machines
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Ten minutes from Times Square or Penn. Bus Station, via Lincoln Tunnel.

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KINKS & SHORT-CUTS

(Continued from page 130)

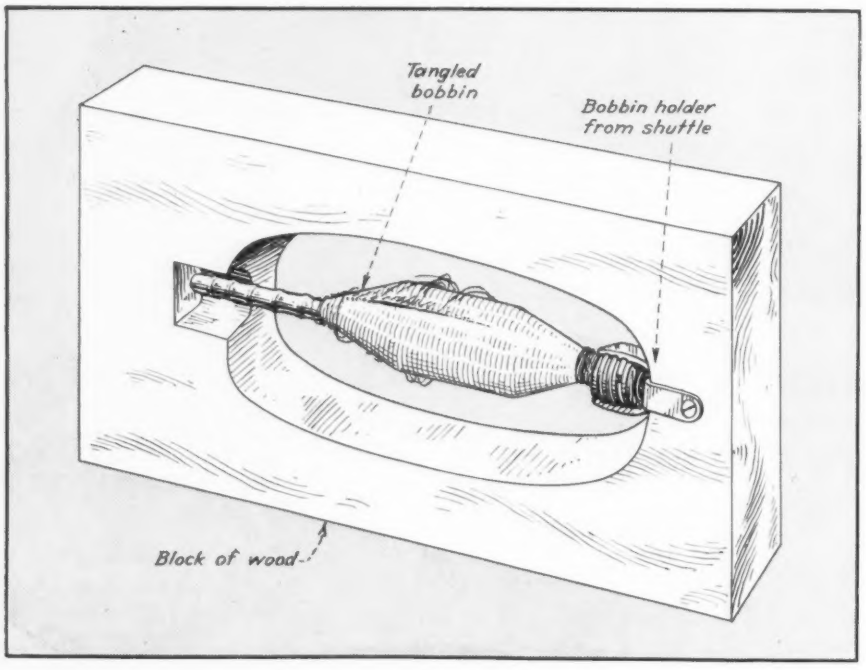
immediate drying of the printing paste. The pressure of the padding roller, combined with the tension set-up in the yarns by the irregular speed of wetting during the padding operation, caused fracture of the fibrillae on drying, which made itself evident only after the thickening had been washed out.

When this was realized, the padding operation with sodium m-nitrobenzenesulphonate was carried out before printing. The result was that neither tender places nor doctor streaks made their appearance in the goods.—(K-166)

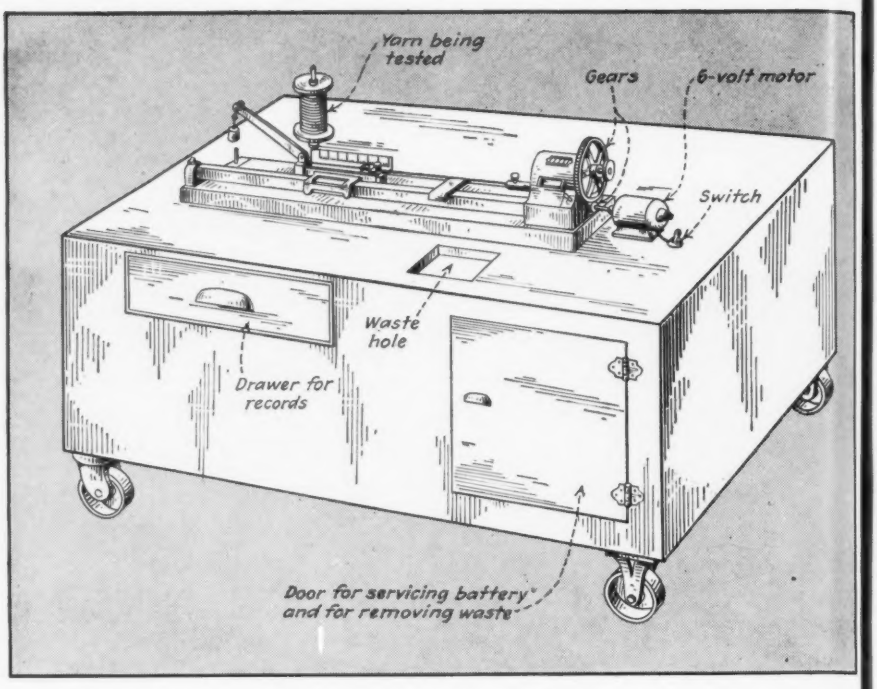
Filling-Bobbin Holder Prevents Cut Fingers

Cutting yarn from a snarled filling bobbin that cannot be run off on a reel is hazardous, especially when the bobbin is held by hand. To prevent cutting accidents from this cause we made a bobbin holder, as illustrated.

The holder that we use is 12 in. long and 6 in. wide and will hold any of our filling bobbins. In use, it is laid across the top of a waste box and the quill is inserted. A regular shuttle clip holds one end while the other rests on a cut-out seat. As the yarn is cut, it falls into the waste box without further trouble. Danger of being cut is eliminated should the knife slip.—(K-157)



Tangled quill holder.



Portable power-driven twist tester.

Twist-Testing Truck Carries Power Supply

The usual practice for testing twist in throwing plants is to carry the yarn to be tested to the twist-testing machine, especially if the machine is electrically operated. Some plants take hand-operated models to the twisting machines or have several stations throughout the plant where electrically-driven machines can be connected. But the apparatus shown in the accompanying sketch is, according to actual time-study tests, better than any of these. It is the fastest and cheapest way to perform this necessary job. Its value, of course, is greatest in crepe throwing plants.

The apparatus, basically, is a twist tester run by a 6-volt motor. It is mounted on a truck which also carries a storage battery and which should include facilities for necessary reports, and for disposing of the waste yarn made while testing.

Not all twist-testing machines lend themselves easily to this conversion. The most suitable type is that which permits removing either S or Z twist without reversing the motor. The machine, from which this sketch was made, employs a 6-volt automobile fan motor, which has no provisions either for reversing nor for speed regulation. Actual use has shown that neither are essential. Perhaps, after the war, these features can be added or a complete 6-volt machine can be bought. Incidentally, battery life was found to be no problem.—(K-154)

Fibers Installed on Picker Sticks Quickly

Many mills use a fiber strip near the end of each picker stick as a protecting surface for the picker. Usually a supply of pickers so equipped are kept on hand, but it is a tedious and arm-tiring job to install them using a hand-drill and screwdriver.

This job can be speeded up and made easier by boring the holes with a

(Continued on page 134)

Schooled in Controlled Manufacture of Dixie Durene

A PRODUCT OF CONTROLLED MANUFACTURE

Money can buy the best machinery and equipment — modern mills — but only training can produce goods of the best quality. • Installation of the latest and most modern machinery is a necessary beginning — but only the controls applied to that machinery, through all processes, by carefully trained workers assures production of consistently dependable *Dixie Durene*.

For years Dixie has operated its own textile school, to make certain that the all-important element in Controlled Manufacture – *Trained Supervision and Skilled Operators* — will be continuously provided. The men and women in Dixie's textile school know they can attain their ambitions through study, education and experienced supervision. • Dixie customers know the satisfaction of using *Dixie Durene* — to secure efficient operation on specific types of knitting machinery.

After the War, when *Dixie Durene* becomes available to the trade in larger quantities, plan to use it in *your* production.

Made of Durene multi-ply mercerized cotton
4 WAYS BETTER than ordinary cottons
EXTRA COMFORT ---more absorbent
EXTRA STRENGTH ---longer wear
EXTRA QUALITY ---lasting lustre
EXTRA SERVICE ---easy to wash

10% OF DIXIE'S PAYROLL INVESTED IN WAR BONDS

Dixie MERCERIZING COMPANY

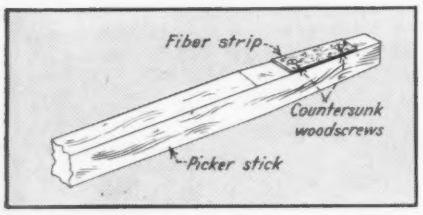
CHATTANOOGA 1, TENNESSEE

AMERICAN COTTON

Dixie Durene
A PRODUCT OF CONTROLLED MANUFACTURE

KINKS & SHORT-CUTS

(Continued from page 132)



Fiber strip quickly attached.

drill-press using a strip as a jig. After drilling a supply of sticks, a screwdriver bit is put in the chuck. The drill is then run at its slowest speed and is used to run in the screws quickly and with little effort. The blade is raised when the screw is tight to prevent splitting the stick.—(K-132)

Division Simplifies B-C Electrical System

Teaching new men the electrical system of the Barber-Colman superspeed warper had always been, for me, most difficult until I developed a three-part diagram. The machine utilizes nine circuits to start, run, stop, and reset it. These circuits can be traced by means of different colored pencils but, unless divided into groups, this results in a confusion of colors.

I have found that the circuits can be drawn as three units of three parts each, which simplifies the instructing of new men. The division, and distinctive colors given each circuit follows:

Diagram No. 1: Circuit No. 1—Red—Magnetizes relay coil. Circuit No. 2—Blue—Starts reset motor. Circuit No. 2—Green—Keeps reset motor running.

Diagram No. 2: Circuit No. 4—Red—Starts creel fans. Circuit No. 5—Blue—Magnetizes trip coil. Circuit No. 6—Green—Energizes limit switch.

Diagram No. 3: Circuit No. 7—Red—Energizes drop wires, clock, safety, and stop lever. Circuit No. 8A—Blue—8B—Green (This is a double circuit) Resets warper.—(K-142)

Cones Cover Steam Line to Protect Acetate Hose

With the reduced temperature and resulting steam pressure necessary in the preboarding of acetate hosiery, considerable trouble is sometimes encountered with condensation of the steam. At times condensate may splash on the hosiery, severely enough to deluster certain areas to such a marked degree that after dyeing, the hose must be degraded. The welts are particularly susceptible to this damage.

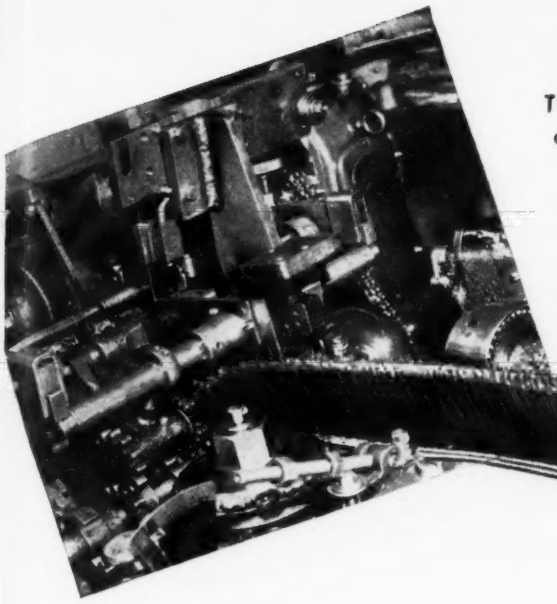
This trouble can be overcome by bolting in the center of each carriage, level with the bottom of the forms, a cone-shaped piece of metal about a foot in diameter. Thus, when the forms are filled and the carriage is moved to the preboarding position and the dome lowered, the cone is directly over the steam inlet, as shown in the sketch on page 130. When the steam line opens, any condensate thrown out hits the inside of the cone and drops back harmlessly on the table, instead of going on up between the forms and splashing on the hose. (K-153)

LOOMFIXER'S CHECK-LIST

1. Keep loom clean and free from waste.
2. Grease loom carefully, but do not splash nor waste lubricants.
3. Tighten all setscrews, nuts, bearings, and crank arms.
4. Remove play from crankarm.
5. Take box out if lay-end is to be lined with lay.
6. Line up box and take out end-play.
7. Replace worn fiber pins in shuttle box.
8. Check to be sure lay beats up evenly on both sides.
9. Check motor pinion; reset it if necessary.
10. Check reed cradle bearing, allow no play at bottom.
11. Reset gears if necessary.
12. Notice if take-up gear runs smoothly, allow no back-lashing.
13. Remove let-off stud and wipe it clean.
14. Replace bunter protection, if necessary.
15. See that take-up pawl travels halfway across its next tooth.
16. Check and clean sandroller gear and bearings. Look for play.
17. Allow no end-play on rocker shaft.
18. Tighten reed pivots.
19. Keep reed snug in reed caps. Allow reed necessary movement.
20. Level boxes with raceplate. Observe lift on protecting rod; finger must set against swell. Inspect leather on swells.
21. Check and clean felt roller.
22. Replace heel plug if worn.
23. Set brakes to stop before reed hits.
24. Set picking shoe directly back of bottomshaft.
25. Box-side picking sweep to be 8½ in.; plain side, 8 in.
26. Set center filling motion and check its operation. Dagger usually 3¾ in. long.
27. Keep clothroll friction loose.
28. Pick starts 8¼ in. from breast beam.
29. Check nose of shoe to be ¼ in. behind back of bottom shaft.
30. Check dobby for bad hooks and jacks, bad mounts, cords or sheaves.
31. Remove play from dobby drive gear bearing.
32. See that jacks pass the same place on each side.
33. Put shuttle in best condition, polish and wax.
34. Shuttle spindles must be straight and oiled. Shuttles must strike center of both pickers.
35. Check picking-ball to prevent double pick.
36. Set filling motion ¼ in. higher than shuttle. It must stop loom ¼ in. from the goods.
37. Check plain and box side for pinched shuttle. Also inspect shuttles for cut rings, cut pins, or badly worn fur.
38. Check warp tension and shed.
39. Check pick-wheel and regular take-up.
40. Check filling feeler as edges may be worn.
41. Set let-off weights 6 in. from end of lever and at no time allow them to touch the floor.
42. Check filling yarn and tension of yarn in shuttle.
43. Do not use rusty drop wires.
44. Check pattern during each pick of a repeat and again after one or two repeats have been woven. Check a third time after one or two yards have been woven. (K-64)

Loomfixer Check-List to Forestall Trouble — *It is easy for loomfixers to overlook some of the many items that they should check, so we made up the accompanying card called a "Loomfixer's Check-List," to be tacked inside the lid of each fixer's box. This kink has assisted us in clarifying details of the fixer's job; for example, item 33 places the responsibility for maintaining shuttles on the fixer, rather than on the weaver and shuttle shop. Although practices differ from mill to mill, this list can be used as a model. (K-64)*

FULLERGRIPT BRUSH STRIPS
are made on a machine like this..



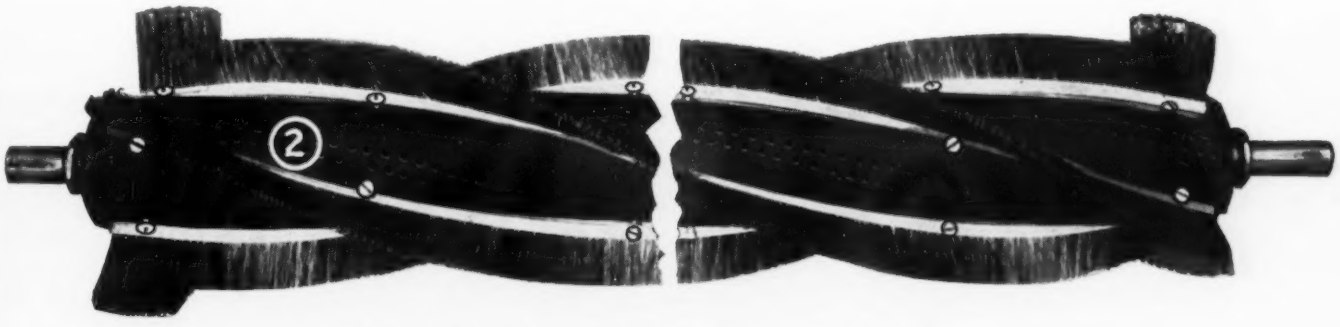
The brush material is centered over a ribbon of heavy-gauge metal and held in place by an anchoring wire and roll-formed into the finished shape as illustrated ①. Thus, as the bristles are doubled under the anchoring wire (hairpin style) and encased in metal under great pressure, permanency is assured.

FULLERGRIPT has a solid, continuous fill of material with no gaps or spaces between the bristles, resulting in much longer life and far better cleaning.

COTTON MILLS can re-brush their FLAT CARDS *with* FULLERGRIPT BRUSH STRIPS -

which are shipped pre-formed to the correct degree of spiral (right or left hand). Your own maintenance men can easily mount them to the old brush roll.

Over 6000 Cotton Card Machines
are equipped with our brush sets and are doing a better job of cleaning card clothing.



This is how your maintenance men renew your worn-out card brushes with FULLERGRIPT STRIPS

Put worn card brush roll in lathe centers. Trim off old tufts of bristles with a sharp knife. ② Sandpaper the roll. Apply two coats of black shellac. Drill screw holes on 8" centers and fasten the spiralled Fullergript Brush Strips with the special screws furnished with each set of strips.

EVERY WEEK **some** ***COTTON MILL*** **in the United States installs one or more sets of** ***FULLER FLAT CARD BRUSH STRIPS***

THE FULLER BRUSH COMPANY
INDUSTRIAL DIVISION, DEPT. 8C, 3594 MAIN ST., HARTFORD 2, CONN.

THIS IS NO. 44 OF A SERIES ON

GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

NO. 90 TENSIONS FOR YARN DELIVERED FROM A VERTICAL, OVEREND SUPPLY

We are frequently asked to recommend the proper tension assembly for the several types of synthetic filament yarns. Naturally, our replies are pre-determined by the experiences of many mills. The opinions of mills do not always agree as to the qualifications of individual tensions, such opinions being prejudiced by long usage and continued familiarity with the kind of tension they happen to be using. It is our purpose to describe the four outstanding overend No. 90 Tensions and to specify what each is intended to accomplish.

NO. 90 REGULAR FINGER TENSION

The Regular Overhead Overend Finger Tension is used widely and successfully on all types of filament yarn.

Its action is very simple. Tension is primarily applied by weights suspended from a cord attached to the top of the movable grid. The pull of the weights causes the fingers of the movable grid to push themselves within the complementary spaces of the stationary grid, thus increasing the wrap of yarn as it passes between each set of fingers.

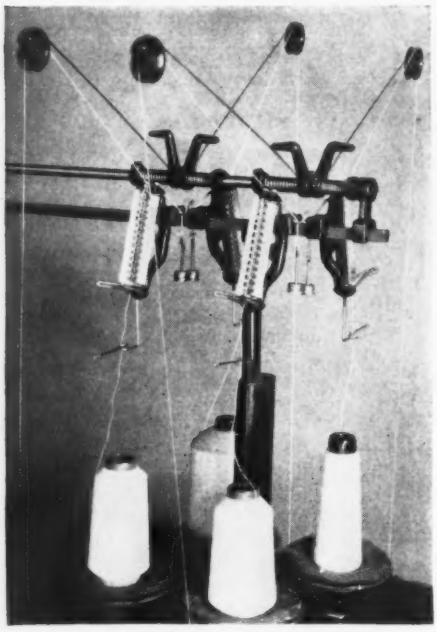


Fig. 1 Regular Overhead Overend Finger Tension

The Finger Tension is mounted on a special bracket which holds it at an angle of approximately 18° from the vertical. A compensator is always used to take up slack in the yarn created by the difference in yarn takeup speed between the top and low points of the traverse or slope of the bobbin.

Chromium-plating the grids of the Finger Tension provides durability, but they should be inspected regularly for wear.

NO. 90 ANTI-WEAR TENSION

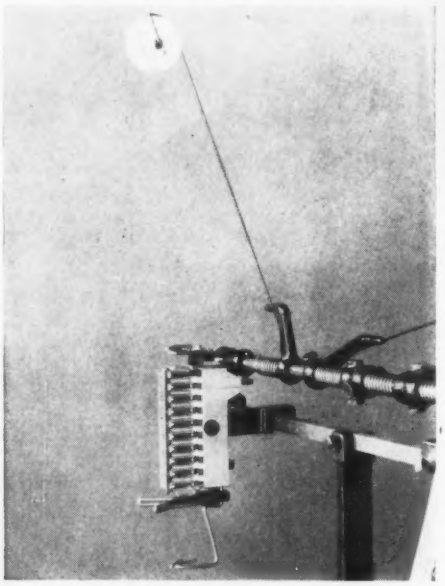


Fig. 2
Overhead Overend Anti-Wear Tension

The Overhead Overend Anti-Wear Tension is suitable for any type of rayon filament yarn, but is especially recommended for abrasive yarns.

It is similar to the Regular Finger Tension, except that its construction allows the yarn to oscillate between the two wide grids, reducing the possibility of wear. Pigtails above and below the grids have elongated slots which give the yarn freedom of motion laterally.

The Anti-Wear Tension is mounted vertically (not inclined) above the supply package. The compensator must be set so that the oscillation of the yarn will be within the breadth of the tension grids and should not, therefore, be pulled as far forward as is usual with the Regular Finger Tension.

NO. 90 DISC-QUIL TENSION

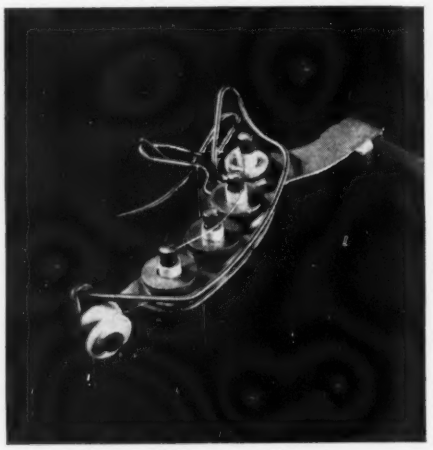


Fig. 3 Disc-Quil Tension

The Disc-Quil Tension is ideal for rayon filament yarn of 150 denier and finer.

It controls tension by allowing the yarn to pass between four sets of facing discs, which rotate as the yarn passes. Washer weights placed on the top discs, apply the desired amount of tension, progressively, to the yarn. Frictional contact with the yarn is obtained from sources which rotate, rather than remain stationary.

Some mills, handling a wide variety of filament yarn, including voile twist up to 30 turns per inch, have found this tension satisfactory for their entire range of yarns. To prevent kinks from forming in lively yarn, it can be wrapped around the anti-kink bail just before entering the first set of discs.

It is important to keep the discs clean. Lint and particles from pigmented and acetate yarn will tend to collect between the discs and also on the posts around which the discs rotate. Unless removed, the accumulation will elevate the upper discs and stop rotation—resulting in improper tension. Both discs must rotate. The bottom disc may only creep, but this is satisfactory.

The Disc-Quil Tension is not recommended for multi-filament yarns having little or no twist, since the rotating discs have a tendency to spread the filaments apart.

Note: Further information including facts on No. 90 Crepe Tension, will be sent upon request.

See our Catalog in TEXTILE YEARBOOK
43-GMW-44

"THERE'S A UNIVERSAL WINDER FOR EVERY TEXTILE NEED"

UNIVERSAL WINDING COMPANY

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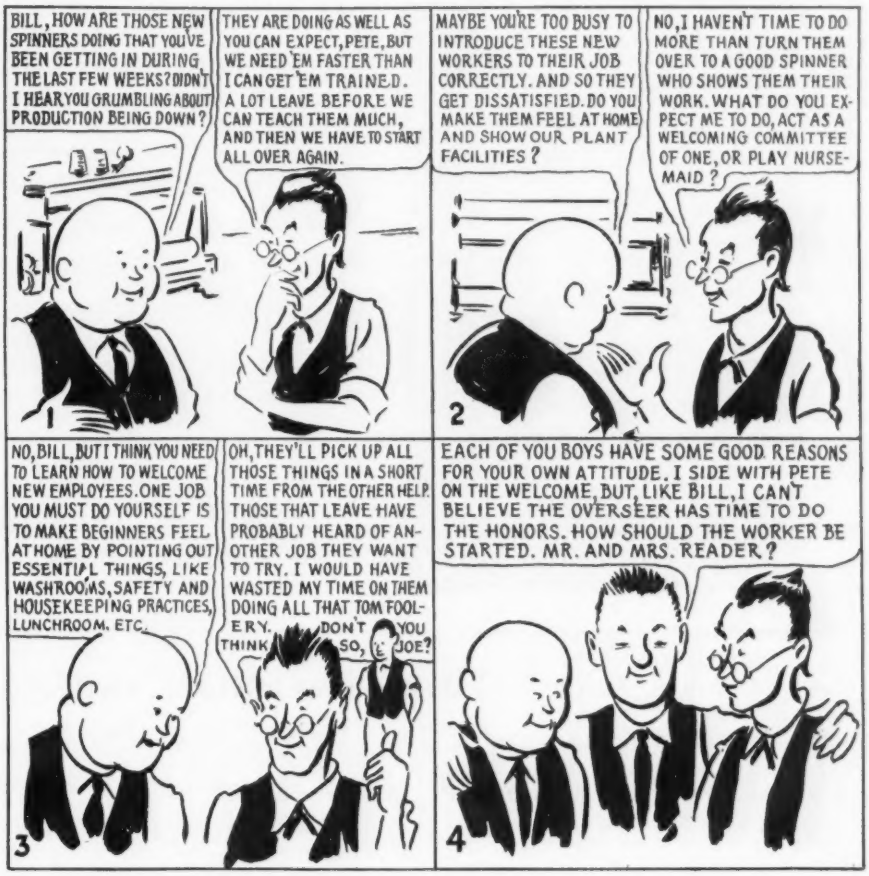
*Reg. U. S. Pat. Off.

Pete & Bill

STARTING THE NEW WORKER

Is it worth while for the overseer to spend time with new workers, or can introduction to the job be left to the experienced employees who will do the detailed training?


BILL, HOW ARE THOSE NEW SPINNERS DOING THAT YOU'VE BEEN GETTING IN DURING THE LAST FEW WEEKS? DIDN'T I HEAR YOU GRUMBLING ABOUT PRODUCTION BEING DOWN?
THEY ARE DOING AS WELL AS YOU CAN EXPECT, PETE, BUT WE NEED 'EM FASTER THAN I CAN GET 'EM TRAINED. A LOT LEAVE BEFORE WE CAN TEACH THEM MUCH, AND THEN WE HAVE TO START ALL OVER AGAIN.
1
MAYBE YOU'RE TOO BUSY TO INTRODUCE THESE NEW WORKERS TO THEIR JOB CORRECTLY. AND SO THEY GET DISSATISFIED. DO YOU MAKE THEM FEEL AT HOME AND SHOW OUR PLANT FACILITIES?
NO, I HAVEN'T TIME TO DO MORE THAN TURN THEM OVER TO A GOOD SPINNER WHO SHOWS THEM THEIR WORK. WHAT DO YOU EXPECT ME TO DO, ACT AS A WELCOMING COMMITTEE OF ONE, OR PLAY NURSE-MAID?
2
NO, BILL, BUT I THINK YOU NEED TO LEARN HOW TO WELCOME NEW EMPLOYEES. ONE JOB YOU MUST DO YOURSELF IS TO MAKE BEGINNERS FEEL AT HOME BY POINTING OUT ESSENTIAL THINGS, LIKE WASHROOMS, SAFETY AND HOUSEKEEPING PRACTICES, LUNCHROOM, ETC.
OH, THEY'LL PICK UP ALL THOSE THINGS IN A SHORT TIME FROM THE OTHER HELP. THOSE THAT LEAVE HAVE PROBABLY HEARD OF ANOTHER JOB THEY WANT TO TRY. I WOULD HAVE WASTED MY TIME ON THEM DOING ALL THAT TOM FOOLERY.
DON'T YOU THINK SO, JOE?
3
EACH OF YOU BOYS HAVE SOME GOOD REASONS FOR YOUR OWN ATTITUDE. I SIDE WITH PETE ON THE WELCOME, BUT, LIKE BILL, I CAN'T BELIEVE THE OVERSEER HAS TIME TO DO THE HONORS. HOW SHOULD THE WORKER BE STARTED, MR. AND MRS. READER?
4

LETTERS TO PETE & BILL are paid for when published, without regard to length. We use letters (not over 200 words) discussing material in this department or any other pertinent matter. Contributions of greater than specified length may be given consideration as articles. Suggestions for the Pete & Bill dialogue are also welcome and if used will be paid for. If these pages interest you, contribute something to them to interest others. Address PETE & BILL, Textile World, 330 West 42nd Street, New York 18, N. Y.

Letters From Readers

Get That "Know How" via Technical Meetings

"Technical Meetings in Wartime"
(Pete & Bill, Feb., 1944)

Dear Bill & Pete:

The problem of going or not going to technical meetings during wartime has its "pro" and "con" arguments to be sure—it calls for some good common sense on every one's part to get the best in the quickest and easiest way.

By all means have technical and inspirational meetings for all who can attend them! We need more and more inspiration and technical knowledge to keep the wheels turning. After all, we're on the home front; the boys out there have the "know how," and it's our responsibility to our job and to them to know how, too.

You don't have to travel 200 miles to get what you need. Get a small group and bring your meetings to the home town. Have them at night or Saturday afternoon, once each month or two.

So—with this modification, Pete, Bill and Joe are all O. K. We eat our cake and have it too. (PB-130)

Meetings, Good in Peace Time, Out in Wartime

"Technical Meetings in Wartime"
(Pete & Bill, Feb., 1944)

Dear Pete & Bill:

For one, at least, let me discourage further mechanical meetings in textile plants for the duration—unless such meetings become urgently imperative and necessary. Such meetings, though important in normal times, should be discouraged in times of stress. We must win the war at all cost.

Overseers, second hands, and fixers should attend mechanical meetings in normal times. These get-togethers develop a more genial, brotherly love among the heads and foremen of the plants, resulting in beneficial help and cooperation for the future. (PB-131)

Foreknowledge Helps Make Better Foremen

"For Better Informed Foremen"
(Pete & Bill, Jan., 1944)

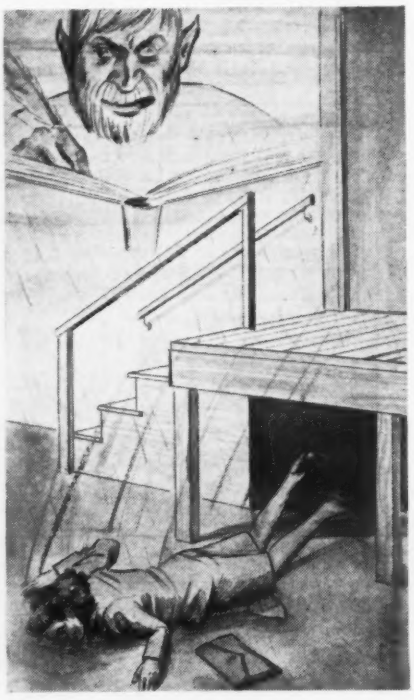
Dear Pete & Bill:

Here's a vote for Pete on the question of foremen being informed of the management's future plans.

By being informed of future plans, the foreman will be in a position to meet changes that will occur when these plans are put into effect, with a minimum loss of time. This may be accomplished by having the machines in condition readily to produce any new lines to be run. Better quality and production will result.

Any management will be greatly benefitted by seeking the ideas and opinions of its foremen regarding con-

MEMORIES OF OLD MAN CARELESSNESS



By MARTHA B. PITTENGER

No. 16. FORGET-ME-NOTS.

In lots of mills, I have scores of sweet little forget-me-nots, some of them have black eyes, blue elbows, skinned legs. This particular one had all three, plus a fractured hip.

The strange part of this story is that the management had seen to it that steps with a hand rail were built beside a loading platform so that people could use the steps to go down to the sidewalk, particularly when it was raining because the platform became slippery when wet.

Well, it was raining hard at stopping time. It was a good day for a murder. I wasn't in a murderous mood, but I did want to see someone get hurt. When a sweet little forget-me-not came out of the mill, I motioned for her to take the quickest way to the sidewalk, over the platform. And mister, I mean quickest!

No sooner had her feet hit the platform, than they slipped, she rolled across it and plunged to the ground, her head banging the sidewalk. I was proud of my work for it was a real good accident—a gash above her eyes, two bruised elbows, skinned knees, and a fractured hip. It's seldom I got such a variety of injuries from one accident. The sweet young thing failed to use the safe and sure way the management had built for her—steps with a railing to hold to.

Yes, sir, they just keep on forgetting-me-not. Until they remember to forget me, I'll have pages like this in my memory book.

templated changes, thereby avoiding costly mistakes.

It is often said that foremen are the sergeants of industry. Whoever heard of sergeants being kept in ignorance before an attack on the enemy? (PB-135)

Stimulate Thinking, Even in Wartime

"Technical Meetings in Wartime"
(Pete & Bill, Feb., 1944)

Dear Bill & Pete:

I certainly believe that mill foremen should attend technical meetings in wartime.

Right now most foremen are so self-centered on their immediate problems that they sometimes stop thinking of new ideas. At most of these meetings the speaker is a man well versed in textiles and its problems and this may be a means of starting us thinking again of new ideas.

Most mill men have worked in various places and these meetings are a mighty fine way to renew old friendships and make new friends.

It is my opinion that many old and troublesome problems may be solved by talking things over in good jam sessions. Trolleys, buses and trains still run, so why worry about the gas shortage, and, anyway, wasn't it nice to get out for a night during these trying times. (PB-134)

Correct Mistakes Tactfully

"Correcting Worker's Mistakes"
(Pete & Bill, Oct. 1943)

Dear Pete & Bill;

Bill is lacking in the proper manner of correcting a worker from the point of view that not one worker can make all the mistakes. That thing alone, in accusing a worker causes slowed up effort on the part of the worker. Putting part of the blame on the worker is enough when due, but heaping more than his share on him is too much. Also, Bill doesn't seem to have the proper teaching ability. When instructed accurately, a worker doesn't forget so long as he has his work at heart. Generally it's not a question of the worker being too dumb to learn, but a question of the instructor being too dumb to teach in such a way that the teaching will stay with the worker. Faulty teaching makes a smart alec out of a really smart worker because they then try to outsmart the teacher.

By all means get the facts before correcting the worker, and correct him with tactful suggestions. Even then, it's best to make your suggestions in private and not in front of other workers. This puts both the worker and the instructor in a bad light and spreads discontent.

A good suggestion for any foreman or instructor is to learn the life of the worker outside of the plant as well as inside because the worker's ability on the job is largely governed by his home-life in spite of the best management in the world. (PB119)

Cordiality, But Not Revelation of All Plans

"For Better Informed Foremen"
(Pete & Bill, Jan. 1944)

Dear Pete & Bill:

My version of the situation is that there should always be more or less cordiality and cooperation between top management and the foremen, but I doubt if all the plans of the heads should be revealed to the foremen. It might not be the best on every occasion; in fact I am sure it would not. If the front office is to make a change for the betterment of the business I should say that that change should be kept confidential from the foremen, some of whom might not agree, every time, with the wishes of the management.

I agree that a mutually good feeling ought always prevail throughout the plant in every department; there should be no friction in efforts to boost production, to make it reach the highest possible point. But I feel that such matters as changes in the company's personnel might be kept from foremen, generally speaking, until after the change has been made.

Some friction might result if foremen were always informed of pending changes in management. (PB 123)

Life Saving Heat Sealed in Cotton

Because field dressing stations are rarely equipped with necessary electric current or hot water, the Medical Corps use a "chemical" hot-water bag.

Made of a resin-coated fabric, this small bag is filled with chemicals. When water is added, the chemicals and water become heated, giving the same results obtained with electrically heated pads.

The Medical Corps has many other uses for cotton . . . For example, supplying bandages and bedding as well as uniforms for our courageous nurses and doctors.

Butterworth Machines play their part at every step in the wet end of textile finishing . . . bleaching, boiling-out, drying, calendering, dyeing.

The cooperation of Butterworth Engineers is freely offered to every mill seeking to achieve increased productive efficiency . . . or to repair or replace worn-out or obsolete equipment.

All of our facilities not required for Ordnance production are available to help you solve your present finishing problems, and aid you in your post war plans. Let us serve you now.

***64%**

of equipment now in use in the wet end of textile finishing cannot operate at a profit in competition with modern machines.

*Proved by Research

H. W. BUTTERWORTH & SONS CO.
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Butterworth

PRODUCING GUN MOUNTS FOR THE UNITED STATES ARMY

Discuss Innovations in SLASHING and WEAVING

HIGHLIGHTS: STA Group Considers Methods for Increasing Production—Use of Infra-Red Units for Speeding Up Warp-Sizing Operation— Pointers on Loom Maintenance—Divergent Ideas on Training Weavers.

INCREASING PRODUCTION and reducing waste in slashing, inspection and maintenance of looms; and methods for training weavers were the major topics discussed at a meeting of the South Carolina Division of the Southern Textile Association, held March 18, in Spartanburg, S. C. President Joe C. Cobb of the S.T.A. urged members to make the gatherings profitable by contributing discussion questions in advance of meetings to the chairman of the division. John T. Wigington of the Cotton-Textile Institute spoke of the conferences sponsored at various points in the South by the Cotton-Textile Institute for discussion of problems by mill executives.

DEVELOPMENTS IN SLASHING. One mill man told of his experience in using electric infra-red unit as an auxiliary dryer for slashing which allowed an increase in slasher speed; no change in the size formula was necessary, although the immersion of the yarn in the size was increased. Another mill man described experiments with a gas-fired infra-red unit which increased slasher speed; although good results are expected, the engineers are still working to solve some difficulties which developed.

Contact rolls as a means of increasing slasher speeds were said to increase the speed of slashing about in the same proportion to the amount of increase obtained in drying area. One member stated that he had removed part of the drive from his positively driven slasher and found that stretch was less than when the slasher was positively driven.

Soft waste in slashing was reported in one instance as low as 13 oz. per set where special bearings and fiber washers were used on section-beam journal. The low waste percentage was attributed to better control of the section beams possible with these bearings. It was the consensus that 3 lb. of hard waste per set was about the normal amount produced.

WEAVING PROBLEMS. Consensus of those attending the session on weaving was that in changing to longer quills on yarn above 40s breakage and refills are increased. The speed of the loom, width of loom, the anti-balloon methods necessary, and the longer shuttle, quill, and box front give the filling more chance to break. Good fixing and good quills are necessary after such changes. Tapers can be changed to reduce amount of filling breakage.

General opinion was that shuttle life on looms varies with the mill, the type of goods woven, and the number of shifts run, from 1 to 5.6 shuttles per loom per year being reported. However, Thomas Henderson, head service engineer of Draper Corp., gave 2,000 to 2,500 hr. as the average life of a shuttle on any construction.

Loom-inspection frequency is governed by the operating conditions. One member stated that his mill has a regular maintenance inspector who fills out a card on his findings which is turned over to the second hands to get the work done. Follow-ups are made to be sure the repair work and adjustments of looms are performed properly so as to prevent breakdowns.

Gages for setting looms are considered practical when fixers on all shifts are required to make settings alike. Mr. Henderson said that the lay gage should be used first, then settings with other gages would not be thrown off.

TRAINING METHODS. Discussion of methods for training weavers brought out divergent opinions. One group favors training as a special activity under a special director with trained instructors. Another group prefers putting the new employee with a good worker to train. The industry has used the latter method for years, according to one mill superintendent, and the great majority of textile workers have been trained that way, and the method still works pretty well. A supplementary statement on training methods prepared for TEXTILE WORLD by one of the men taking part in this discussion is given in the accompanying panel.

TRAINING WEAVERS

Essentially our program for training weavers is based on training our own instructors to teach the desired methods. The instructor takes the learners through a training school for a period of preliminary instruction; and then guides the worker on job stands of 25, 50, and 75% of a full job over a ten-week period, after which the worker takes a full job. Careful records are kept on attendance and performance during the entire period.

Great stress is put on regular attendance for those selected to take this training. Any unwarranted absence from work is ground for discontinuing training, and the consequent loss of opportunity. Most of those trained for weavers are selected from those on jobs of less skill in the weave room.

Over the past two years our training program has allowed our mill to continue three-shift operation. The importance of such a program is apparent when it is realized we are using help we have trained in one department under this program to the extent of 90% of the third shift, 83% of the second, and 3% of the first. Not only have we trained weavers, but workers for other jobs as well by this program. We hope to continue and expand our training program after the war, when we can expect to be able to select those best suited to the work for which they are to be trained.

Supplementary statement prepared for TEXTILE WORLD *by Harold Harrelson, training director, Drayton Mills, Spartanburg, S. C.*

Give your fabrics the benefit of

3 dimensional scouring

1 WETTING **2 SOLVENT ACTION** **3 EMULSIFICATION**

provided by this new "super detergent" . . .

What do we mean by "3-dimensional scouring"? Well, let's put it this way: No one basic material—soap, synthetic detergent or alkali—has *all* the physical and chemical properties required to perform the perfect scouring job. Because of the natural deficiencies of these materials, it is usually necessary to supplement their action by the use of heat, fabric manipulation or time (or a combination of these factors) . . . all of them costly and undesirable!

To eliminate the need for these supplemental factors QUAKER research chemists have sought to incorporate into a single "super detergent"—QUAKER THERMOL #15—*all three of the fundamental properties* required to produce the most perfect scouring results:

WETTING—QUAKER THERMOL #15 instantly penetrates and wets out the fibres at normal tap water temperatures. Scouring can start at once. No time or fuel is consumed in heating liquor.

SOLVENT ACTION—QUAKER THERMOL #15 actually dissolves oily and organic substances not affected by ordinary soaps . . . and without heat or extra fabric manipulation! Produces faster, more thorough and more uniform scouring . . . at only 60% of usual soap concentration.

EMULSIFICATION—QUAKER THERMOL #15 rapidly disperses oily matter dissolved by its solvent component. This matter is suspended in the liquor—*not in the fabric*—and is not dependent upon rinsing to remove it. Thus less rinsing is required . . . more time is saved!

In all, "3-dimensional scouring" provided by QUAKER THERMOL #15 cuts 30% to 50% off the total scouring and rinsing time required by ordinary soap . . . saves fuel . . . and turns out absolutely clean fabrics at minimum cost.

A Quaker Process Engineer will gladly call on you and supply additional information on this and other textile products developed by Quaker Research. You will find that his thorough technical training and years of practical mill experience, combined with these modern processing and finishing materials, can be tremendously helpful in meeting changing conditions . . . both now and in the future. Having him call places you under no obligation. Just use the convenient request form below.

QUAKER THERMOL #15

- **A highly concentrated, "super detergent" that readily mixes, scours and rinses in *cold* or hot water.**
- **Is stable in hard water.**
- **Liquor is clear and uniform at all normal temperatures. Has a faint, pleasant odor.**
- **Is not volatile or disagreeable to handle.**
- **Does not affect dye index; prevents bleeding of colors and helps to assure uniform shades.**
- **Is completely non-injurious to all fabrics.**
- **Imparts a uniformly soft, drapy hand and insures the highest of cleanliness to fabrics.**
- **Keeps scouring costs, time and fuel consumption to the absolute minimum.**

QUAKER CHEMICAL PRODUCTS CORP.
CONSHOHOCKEN, PA. Other Plants in CHICAGO and DETROIT
Warehouse Stocks in Principal Industrial Centers

Please send me further technical data on QUAKER THERMOL #15
Without obligation to me, please have a QUAKER Process Engineer call.

Name_____ Position_____

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LONG DRAFT for Combed Yarns

HIGHLIGHTS: Shaw Method Described at STA Meeting—Has Practical Draft of 30—Data on Rayon Staple Fiber for Use on Cotton System.

THE SHAW LONG-DRAFT SPINNING SYSTEM for combed yarns was described by E. C. Gwaltney, director of research, Saco-Lowell Shops, at a meeting of the Piedmont Section of the Southern Textile Association, held March 4, in Charlotte, N. C. Fletcher S. Culpepper, of American Viscose Corp., led a discussion on the manufacture of spun-rayon yarns on the cotton system.

SHAW SYSTEM. Mr. Gwaltney stated that the Shaw long-draft system, a new system of long-draft, with which practical drafts of 30, (a 200% increase over present long-draft systems) and experimental drafts up to 60 are accomplished, has been under development and test by Saco-Lowell. This has been tested extensively under mill conditions with a 98-frame installation. One of the features of the Shaw system is its flexibility, and where mills make a large range of numbers on a few hank rovings, they do not have to change roll settings even with considerable changes in staple lengths.

According to Mr. Gwaltney, the first advance toward long-drafting came with what is commonly known as "slip" draft. That is, the middle and front rolls were set less than the length of the longer fibers instead of being spaced slightly wider than the longest fiber. Fernando Casablancas substituted aprons for the small slip-draft roll of the old three-roll system, and brought the control of the fibers much closer to the bite of the front roll, thus producing the first real long-draft system. This was followed by Roth, using only one apron, and a very small top roll at the bite of the front rolls.

Several years ago Ben Shaw thought he could improve the drafting process. His idea of drafting was that the pressure on the fibers being drafted should be greater on the rear ends than at the point of release to the front rolls, and that this pressure should be graduated.

DRAFTS OBTAINED. On the Shaw system a distinctive feature is the large middle roll, weighted so that the angle of pressure is forward of the bottom middle roll and a 0.035-in. clearance is maintained between this middle top roll and the Roth apron by loose buttons on this middle roll working against the cap bars. The pressure obtained is approximately 20 lb. As the fibers pass the pressure point under the large middle top roll, the pressure of the Roth apron against it is maintained by the weight of the jockey pulley. As the fibers advance with the apron and roll, the pressure becomes lighter and lighter. The pressure is thus maintained on the longest fibers all the way through, so that as they come through they pull the shorter fibers with them.

RAYON STAPLE ON COTTON SYSTEM. Mr. Culpepper, who is author of the series of articles appearing currently in TEXTILE WORLD on "Running Rayon Staple on the Cotton System," led a spirited questions-and-answers discussion on that subject. In the accompanying panel are presented data on optimum lengths of rayon staple compiled by Mr. Culpepper for TEXTILE WORLD as a result of some of the questions asked at the meeting.

In answer to a question on blending fibers of different densities Carl Brandt, of Whitin Machine Works, stated that the heavy stock has a tendency to separate from the lighter stock. He considers the roller top card to be a better blender than the flat top card on longer staples, whereas on shorter staples the flat top card does a good job. In answer to another question, Mr. Brandt said that the tendency in longer staples is to use larger diameter rolls and that such rolls have a tendency to lick-up.

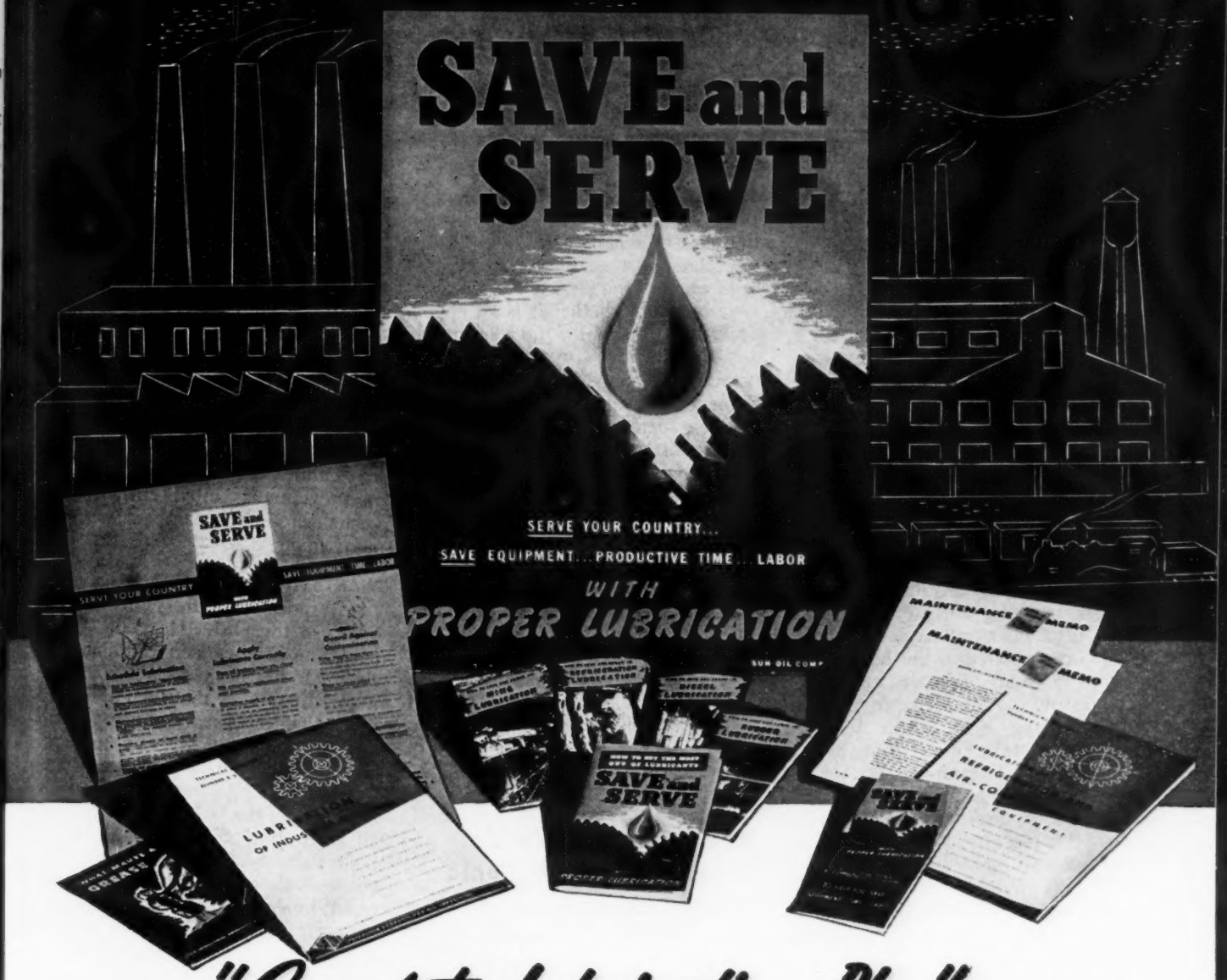
Commenting on the tow-to-top process, Mr. Brandt explained that the yarn from this staple is quite flat and does not have the fullness and feel of stock run through pickers and cards.

Culver Batson, a former president of the association, now with Chadwick-Hoskins Co., Charlotte, was named chairman of the Piedmont Division. John M. Snoddy, of Marion Mfg. Co., Marion, N. C., was made vice-chairman.

Optimum Lengths of Various Deniers of Rayon Staple Fibers Used on Cotton System

Denier	Length	Remarks
1.00	1 9/16 to 1 7/8 in.	Generally 1 9/16-in. length will produce a smoother less neppy yarn than the longer length.
1.25	1 7/8 in.	Only length produced and is ideal from standpoint of neps and strength. Nothing gained by increasing length to 3 in.
1.50	2 in.	Optimum length lies at about 2¼ in. However, from standpoint of nep control and processing, it would not be practical to process this length. 2-in. length is the longest length that we considered practical for strength, nep, and processing standpoint.
3.00	2½ to 3 in.	Optimum length for strength lies between 2½ and 3 in. Processing difficulties are more prevalent on 3-in. length than on the 2½-in. due to excessive fiber breakage.
5.50	2½ to 3 in.	Lengths of 2½ to 3 in. are most satisfactory from strength and running standpoints. At present no lengths above 2½ in. are processed on cotton system.

Data compiled by Fletcher S. Culpepper of American Viscose Corp., for TEXTILE WORLD *to supplement answers given in reply to questions asked at STA meeting.*



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Meetings OF THE MONTH

D-13 to Sponsor Grex as Proposed Universal System

Decision to sponsor the Grex as a proposed universal yarn-numbering system was reached at the spring meeting of Committee D-13, American Society of Testing Materials, held last month in New York. This action by Sub-Committee B-2 on nomenclature and definitions was taken after the Grex system had been discussed at the general meeting and at several sub-committee meetings. A description of the Grex appeared in the January and February issues of TEXTILE WORLD. Other subjects considered at the general meeting were results obtained from the Cotton Fiber Testing Service of the U. S. Department of Agriculture, and the advantages of statistical methods of quality control. During the 3-day meeting, 17 sub-committees and sections held sessions at which new or improved test methods and standards were considered.

Organization of the Government Testing Service was outlined by J. M. Cook, of the Department of Agriculture. The four fiber-testing laboratories were set up 2½ years ago to carry out tests for cotton breeders, growers, and manufacturers. Tests are made to determine fiber length, uniformity, strength, fineness, percent of thin-walled fiber, and cellulose alignment. In addition, at two of the laboratories spinning tests are conducted to determine percent of waste in picking, carding, and combing, and strength and appearance of yarns. Several thousand tests have been carried out to date. These tests, according to Dr. G. T. Wilds, president of Coker's Pedigreed Seed Co., are showing what characteristics are desirable in cotton from the manufacturer's viewpoint. Cotton breeders have already made improvements in fiber length and other properties, and cotton can be bred to meet manufacturing specifications. B. L. Whittier, of Mt. Vernon-Woodberry Mills, stated that the fiber tests have proved to be of value to the cotton manufacturer, giving information on cottons not used before; for example, some undesirable characteristics can be spotted, and cotton having those characteristics eliminated.

SOME OPPOSE GREX. Discussion of the Grex indicated the need for some universal system of yarn numbering, but there was some diversity of opinion as to whether the Grex is the best possible one and whether it is an opportune time to press for the adoption of any new system. It was decided at a meeting of Sub-Committee B-2 on nomenclature and definitions to include a definition of Grex in the glossary of textile terms published by D-13, to include Grex equivalents in the yarn-number conversion tables, and to sponsor the Grex as a proposed universal yarn-numbering system.

Advantages of statistical methods of quality control in the manufacture and examining of textiles were outlined by Lieut. Col. Frank M. Stedman, of Philadelphia QM Depot; and Capt. R. H. Benedict, of Jeffersonville QM Depot. Details on this method of quality control appeared in the December, 1943, and January, 1944, issues of TEXTILE WORLD.

Army Sweater Needs Chief Convention Topic

The invitation to furnish the Army with 5,300,000 sweaters, which at first brought out firm offers of only 2,000,000, came up for discussion at the annual meeting of the National Knitted Outerwear Association in New York, Mar. 30. Maj. J. M. Gibbons, contracting officer for knit goods at Philadelphia QM Depot, a featured speaker at the luncheon, said that more yarn was being made available to cover an additional 1,300,000 sweaters, but that the Army was still short 2,000,000. He asked particularly that contractors, who may own no machinery but who have connections whereby they are able to control considerable production, get busy on this Government work.

Oscar Fishel, of Standard Knitting Mills, Cleveland, Ohio, who had just been elected association president, presided at the convention session.

Richard B. Leake, Jr., chief of the apparel section of the Office of Civilian Requirements of WPB, spoke on the current problems of dividing an inadequate supply.

"The military needs in knitting yarns," he said, "the needs of our civilian population, our share of the essential needs for the nations associated with us, and the needs of those countries coming under our military supervision, are now expected to exceed our supply for the current year. First things have of necessity come first, however, and the war machine was most surely the first thing to secure. The entire production facilities, manpower, and materials of the hard goods industries were commandeered for this purpose and the record of accomplishment in the last two years will remain a record for which this nation must ever be grateful. It is now possible that the soft goods industries may likewise be called upon to make a similar, though not so drastic, sacrifice. In the production of military needs the textile industry has already contributed importantly to the war effort, but the less glamorous job of providing as intelligently for our civilian life imposes an equal responsibility upon us."

WANTS COST SHEETS. Major Gibbons spoke on the purchase-price policy of the QM. He said, "In the past, one of the main complaints of the trade has been its aversion to renegotiation. Now that there is a possibility that renegotiation may be discontinued, it is incumbent upon the Army to take steps to avoid the need for renegotiating contracts. It is now the policy of the War Department that all contracting officers place their contracts in such a manner that the contractor will be allowed a reasonable profit, but no undue profit. Cases are currently headlined in which exhorbitant profits have resulted in some industries, but you and I know that on commercial items such as sweaters, there is little reason for such a condition. The Philadelphia QM Depot believes that every garment has a top price above which we should not pay.

"In order to accomplish this policy and reduce negotiations to a minimum, bidders are being asked to submit a cost sheet, showing how they arrive at their costs and anticipated profit. In the knit goods trade, generally speaking, this request has been fulfilled gladly. A few have indicated, however, that they have never before submitted a cost sheet to anyone in order to sell their goods. My answer to them is that their theory and practice is all right for private business, but when supplying goods to the Armed Forces these aversions should be set aside."

E. A. Brandwein, secretary of the association, pointed out that while other industries feel that they have either hit their maximum stride, this is not so with outerwear. "Now when other industries are thinking of tapering off," he said, "the outerwear productive facilities are being prepared for the biggest job that the war needs have yet placed on it."

Millions of Sweaters produced in 1943

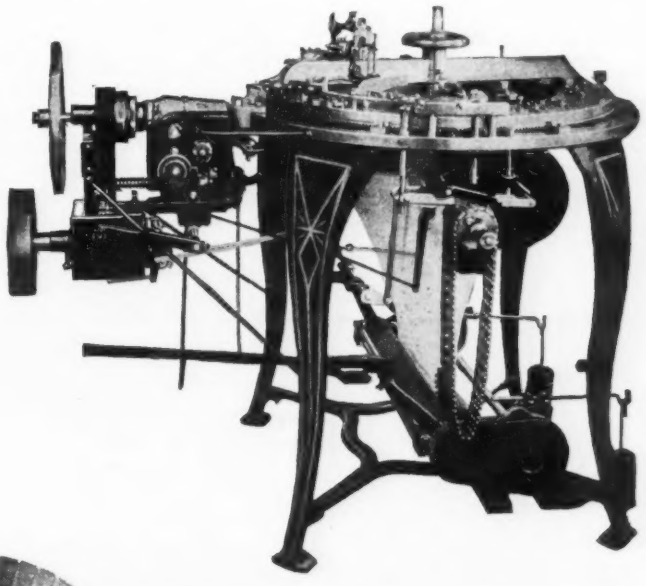
a high percentage were produced on

LEIGHTON KNITTING MACHINES

Many were coarse gauge. But coarse or fine, they can all be produced on the Leighton Transfer Machine.

Not ALL those sweaters were made on the Leighton Transfer Machine, admittedly the most efficient for this class of work. Because of the great demand, many of the old style Leighton Machines, without the automatic transfer features, were put into production. The mills that had to use the old style machine recognize the advantage of the Transfer Machine and many will want to replace the old with the modern as quickly as possible. The new Leightons, when available, will have all the latest equipment—but no Leighton machine now in service will become obsolete by reason of any radical changes in the next few years. The efficiency of Leighton operation is basic, and can only be increased by refinements in construction and operation that do not radically impair the value of old style models.

Whether your mill is devoted to war work exclusively, or whether you are now changing, or planning to change, to civilian production, the flexibility of Leighton Machines—their ability to use coarse or fine yarns—means that your mill will always get better results and maximum production.



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Loomfixers' MANUAL

WOOL SECTION—Chapter XVII (Continued)

PICKING MOTIONS———By Eugene P. Schremp

ADJUSTMENT and timing of the picking motion must be made to start the shuttle as slow as possible and increase the speed gradually as it is thrown from the box. Fig. W38 illustrates the proper position of the picking shoe and picking arm of a batwing motion when the crankshaft is at top center. The picking roll should come in contact with the picker shoe at a point approximately ¾ in. from the end of the picking shoe. This adjustment is very important, otherwise if the roll is allowed to strike the shoe at the end it will wear a flat spot on the picker roll. If the picking roll strikes the shoe at a point half way up the shoe, the roll and picker shoe will soon wear and require replacement. A worn spot on the shoe or roll may cause a weak pick. A picker shoe of the double-wing type, as shown, may be changed from one side of the loom to the other side when it becomes worn. Picker shoes of the single wing type are made for installation on the right or the left side of the loom only.

A type of picking motion employed on the W-1 woolen and worsted loom, is shown in Fig. W39. Tubular steel is used for the picking shaft. Back and front stands are hinged for easy removal of the picking shaft. Picking shoes and picking arm hubs are keyed to the picking shaft. A steel disk is used as a thrust bearing in the back-stand. This disk should be well lubricated. A clamp-collar is used as a stop-arm and also prevents end play in the picking shaft. This collar should be adjusted properly, otherwise there is danger of breaking the projecting stop from the top of the collar. Proper adjustment is secured by loosening the capscrew in the top of the collar so it will move freely. The picking shaft is pushed into the back-stand as far as possible. With the stick back, the sweep arm and the picking shaft are turned to a point where there is only 1-in. play between the end of the sweep stick and the front of the picker stick. At this point all end-play from the picking shaft should be removed by tightening the capscrew. The collar should not be more than 1/32-in. away from the front stand. The picking roll-arm used on this type of loom has a slot with adjusting screws at each end so that the pick-roll stud may be adjusted to its proper position. A plate holding a felt pad acts as a reservoir for lubricating the picking roll. If the adjustment of the picking roll is changed, the plate must be moved because it acts as an end bearing for the picking roll stud and also provides lubrication.

Adjusting and timing a batwing picking motion is accomplished as follows: The pick should begin to move when the crankshaft is at top center. The sweep of the picker stick must be sufficient to carry the shuttle beyond the pinch of the binder. When the loom is running, the momentum of the picker stick will tend to carry the stick forward until it is stopped by either the picker-stick bunter or by packing on the picker spindle. Looms of different widths, speeds and types all require a different measurement of sweep. A rule of thumb which is used successfully by some loomfixers is to have three-fourths of the total distance of picker travel as "sweep." The term "sweep" implies the distance the picker will move the shuttle when the picking roll is on the highest part of the picking shoe.

The start of the pick may be changed by moving the stud of the picking roll in the picking cam. If this change is not sufficient the timing may be farther varied by lifting the crankshaft gear out of mesh with the bottom shaft gear and moving it to the desired position.

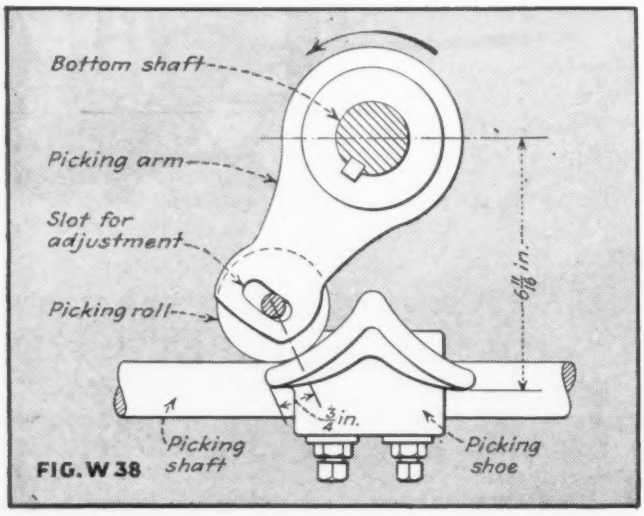

FIG. W 38

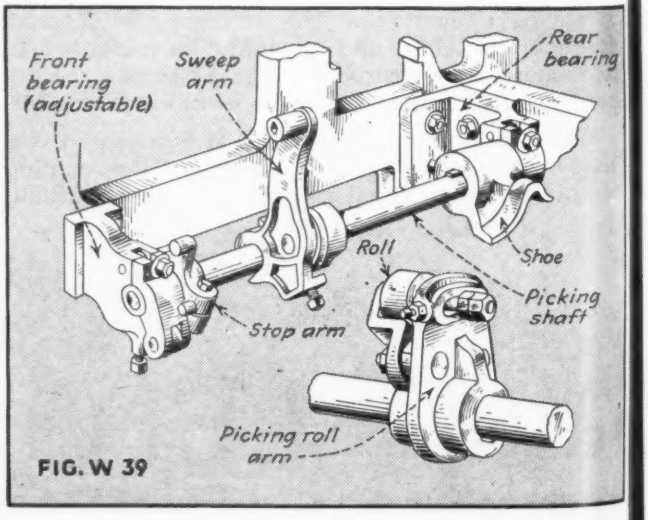

FIG. W 39

Fig. W38. Adjusting a double-batwing pick shoe. Fig. W39. Picking motion used on W-1 looms. *Crompton and Knowles Loom Works*

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READERS interested in literature reviewed on this page may secure copies by using time-saving coupon below. Mark what you want on it and send it to Textile World, 330 West 42nd St., New York 18, N. Y., being sure to give your name and company connection.

1. A glossary of rayon fabrics is being offered by the American Viscose Corp. and should be of great use to those interested in rayon fabrics. While intended for retail stores and the instruction of sales people, it might be advisable for mill men too to review this glossary.

2. "Pressurized Power and Controlled Flow," is the title of a booklet being offered by Presco Products Co. This booklet contains informative material concerning improved methods of handling liquids and utilizing pump power for the operation of controls or wherever the metering or the control of flow and pressure are required.

3. "Wartime Care of Chain Belt Drives," is the title of Bulletin No. 435, recently published by The Chain Belt Co. This booklet gives information on maintenance, lubrication and repair of chain belt drives during present wartime conditions. It is intended to offer hints and ideas so as to help users to get the most out of their existing drives, and save costly delays and unnecessary expense.

4. "Tennessee Manufacturers," is the title of a directory of products, plants and places being offered by Tennessee State Planning Commission. This directory covers textile mills and their products, clothing and other textile products, tobacco, food and many other industries.

5. Modern pH and chlorine control is covered in a handbook being offered by W. A. Taylor & Co. This handbook covers the various methods of pH control and discusses the applications of pH and chlorine control to various industries, including those of textiles, water purification and softening. The Taylor slide comparators for general pH and chlorine control are also discussed.

6. American Standards price lists are being offered by American Standards Association. Included in their latest list are eight standards covering the textile industry. Such standards as those covering textile safety codes, fire hose, testing of woven textile fabrics, shrinkage in laundering of woven cotton cloth, textile testing machines, testing of wool felt, and others are listed.

7. Little Known Facts, About the Scheduled Air Transport Industry, fifth edition, is being offered by Air Transport Association of America. This booklet is a symposium of charts covering data on passengers, air mail, air express and operations. Such items as total passengers carried, total passenger miles flown, air express pounds flown, air express revenues, air express pounds carried, plane operations, safety records and other valuable data are covered in these charts.

8. "Wet Processing Agents for Every Textile Application," is the title of a leaflet offered by Burkart-Schier Chemical Co. Wet processing agents for hosiery and underwear, yarns and piece goods and woolens are mentioned.

9. Industrial thermometers and those for heating, cooling, ventilating and air conditioning are covered in catalog bulletin No. 20, offered by Johnson Service Co. Various types of thermom-

(Continued on page 182)

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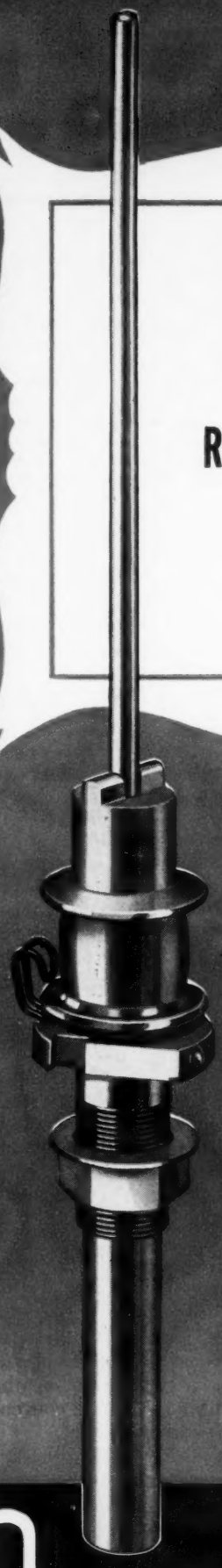

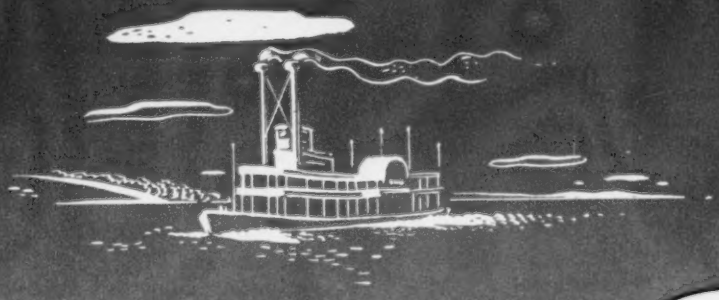

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Round Table

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Has Open Drawing Become Obsolete?

During the last decade the efforts of all textile machinery manufacturers have been concentrated almost entirely on the attainment of one factor, namely, more speed. Spinning is no exception and mechanical speed has been increased to a point where the yarn is unable to stand it. In fact, mechanical speed could be further increased were it not limited by the action of the yarn. Therefore, if the mechanical speed which we know is possible, is to be made practical, a better roving must be delivered to the spinning frame.

It is common knowledge that a ring spinning frame can be run at a spindle speed of 7,500 rpm. without any mechanical trouble, yet most spinners making roving on an open drawing set don't find it practical to run their frames very much over 6,000 rpm.

Many reasons for this can be given, but it must be admitted that the number one reason is uneven roving. Therefore the question is—*Has open drawing, as we know it today, become obsolete?* The answer to the question involves many factors, a few of which are mentioned.

Practically all drawing changes have been made to the detriment of the roving. Operations have been cut down from nine to six and seven operations and an unquestionable saving in cost has naturally resulted.

Comparative studies show little difference in evenness between nine-and six-operation roving, but nobody goes as far as to say that the six-operation roving is better. How could it be when nothing has been done to improve the efficiency of each operation in trying to get easier drafting and better fiber control?

From double roving, most mills have switched to single roving and although some single roving yarn is very good, it can't be called more even than double roving yarn.

The more scientific methods of examining tops enable the drawer to make graphs and determine the percentages of various fiber lengths. Here, again, open drawing has little to offer and full advantage of this improvement can't be taken.

Only two carriers are at the drawer's disposal to control short and medium fibers. Yet tops varying between 5½ and 10 in. in length are to be processed.

Even good ratching will not provide perfect fiber control and I have seen the same combing lot put through a set of drawing with different ratches but with hardly any difference in the ultimate evenness of the yarn.

The insertion of twist makes scientific ratching even more difficult, because the least variation from the ideal twist will affect the fiber control or the drafting of the sliver.

In an effort for further reduction of cost, bigger bobbins are used in various operations which increase the chances of uneven drag almost unavoidably with the friction drive now in use in open drawing. Even with new washers and bobbins weighing exactly the same, it is difficult to get a perfectly even drag.

Very few mills enjoy this ideal condition and an oily washer or an operator who forgets to wrap the end around the fly will cause a certain amount of drafting that makes for bad roving.

The intersected gill boxes are certainly the only big improvement in drawing that will better the quality of the roving produced. Yet, it is not confined to open drawing and all other systems of drawing are taking full advantage of these machines.

In view of these facts it is the opinion of the writer that an improved system of drawing with better fiber control and accurate tension is highly desirable to produce a roving of such quality that will permit full use of the speeds obtainable on modern spinning frames.—F. E. Cleyn, pres., Spinners Limited.

Synthetic Rubber Slasher Rolls

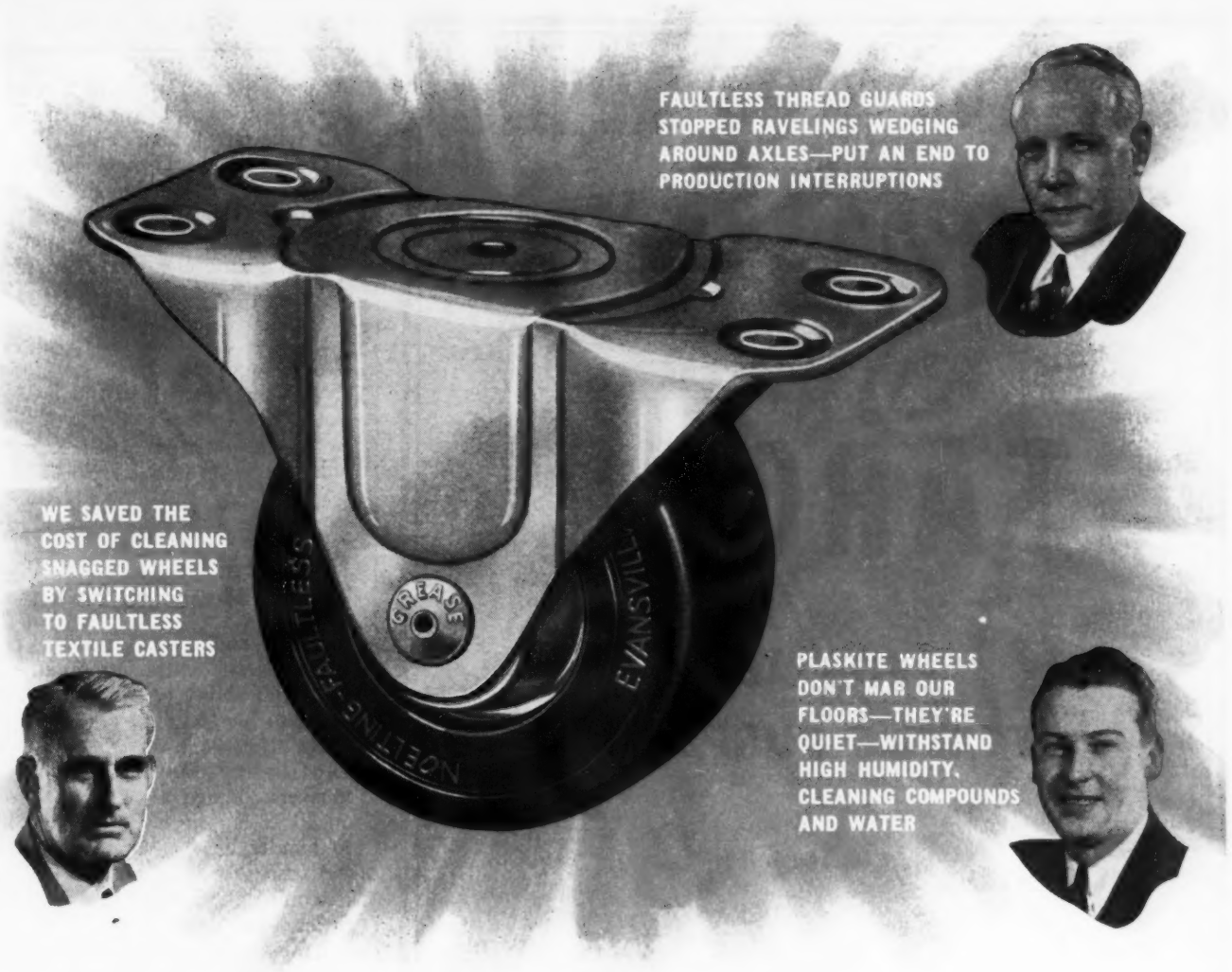
In the October issue of TEXTILE WORLD, H. G. asked for information on synthetic rubber slasher rolls. There is at least one rubber company experimenting with such rolls on conventional cotton slashers, but as yet they haven't worked out the best type of rubber to use. If the experiments are successful, more information will be available.

The problem is to find a synthetic rubber of the correct consistency that will make the size penetrate the yarn in just the right amount without using a covering or blanket on the rubber roll. It seems that the rubber should be made so as to carry a certain amount of size solution, as is the case with conventional wool or cotton slasher blankets.

There is also a question as to whether to use synthetic rubber rolls in the place of both squeeze rolls or of using a back-roll of synthetic and a finishing roll of the conventional type with a wool blanket.

While rubber squeeze rolls on slashers are not new, mills find it necessary to use a jacket or blanket of some material to get the proper squeeze action. When synthetic rolls that require no blankets or jackets are finally developed for cotton slashers, they should make possible a considerable saving in slasher-blanket materials.

For slashing filament rayon (glycerine bath 160°F.) synthetic rubber rolls have been developed to a point where they do an excellent job with-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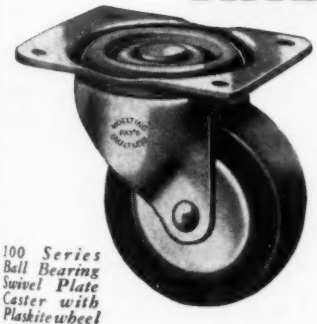

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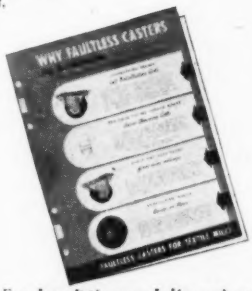

For descriptions and dimensions of Faultless Casters send for this Textile Catalog No. 10140.

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out any covering and with a resultant saving in time and expense in upkeep and renewal of blankets.

Undoubtedly, synthetic rubber rolls will finally be developed for cotton slashers that will prove practical to use without a blanket of any kind. When the developments are further along, I plan to try one of the new rolls on our slasher. However, our slashing is a bottleneck today and I cannot experiment just now for fear of reducing weaving efficiency, but I would like to know what other mills are doing on the synthetic rubber rolls. (R-53)

Technical Knowledge Versus Handling Help

Undue emphasis, it seems to me, is being placed on the importance of a foreman's ability to handle help, compared to his technical ability. I have lately attended several lectures, sponsored by my company, in which the speakers claimed a ratio of 70 to 30, or 80 to 20 in favor of the ability to handle help. My feeling is that the ratio should be nearer 50-50, and I would like to see this discussed through the Round Table.

I must admit that the current labor shortage places a premium on the ability to handle help, but is that not just a temporary condition, whereas foremen should be selected for a long-range program? Take, for example, a foreman who is admittedly good at handling help, so good in fact that he reduces absenteeism and keeps up production. Can he be compared to one who, by his technical knowledge, enables four persons to do the work of five, or who eliminates wasted materials, and extends the life of the equipment entrusted to him? Increasing productivity is the important thing. I feed that this can best be done technologically.

To place greatest emphasis on handling help is to admit, tacitly at least, that progress has ceased, that changes will not be made, except, principally, for the convenience of the employees. It seems to reflect an attitude that the plant exists for the workers rather than that they should contribute to the plant's constant improvement and productive capacity.

I have stated that I believe the ratio between handling help and technical knowledge should be approximately equal for foremen, but, during normal times of pronounced competition, I believe the ratio should favor technical skill. It seems to me that

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- WASHERS
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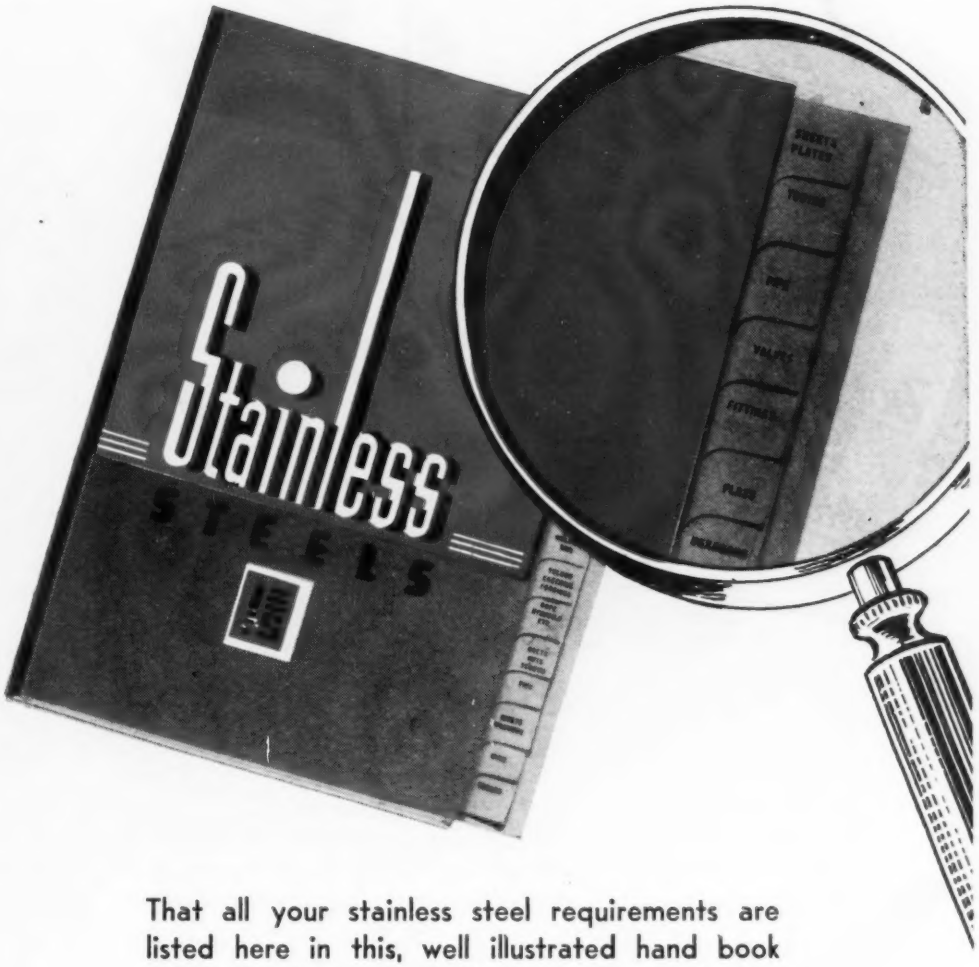

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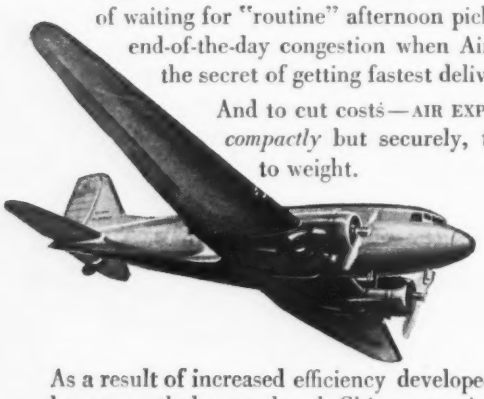

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most persons who favor ability to handle people make a comparison against someone who is practically anti-social, instead of against a well-balanced person such as I refer to.

Do we need to make a decision as to the proportion needed? Can we measure these two qualities? I believe that the affirmative answers both. True, we cannot measure exactly, but we do need to swing the other way somewhat and give technical ability its due. What do you think? *(R-46)*

What is Best Roll Size for Spun Rayon and Cotton?

Mills that spin both plain cotton yarns and spun-rayon yarns have to use different roll diameters in drawing, roving and spinning frames to get the best results. I have been doing this for some time and my drawing, roving and spinning frames are set up differently for each type of fiber.

For some time, I have been thinking that there must be some roll size between the size best suited for cotton and that for rayon; one that can be used for both fibers. I am convinced that a larger roll must be used for spun rayon than for cotton, but I cannot see why one size of roll could not be found that can handle either cotton or spun rayon on the same machines. I am running $1\frac{1}{8}$-in. cotton, and $1\frac{7}{8}$-in. and 2-in. spun rayon.

Some men I have talked with don't think I can use one roll size for both cotton and rayon. I feel sure it can be done and I will like mill men that have the same problem to express their opinions in the Round Table. Also, I would like to know how they would proceed in determining the right diameter roll to use, either for their mill or for the length of staples I run in our mill. *(R-40)*

Fillet-Covered Grinder Recommended for Cards

In answer to W.R.B.'s request (in the January Round Table discussion) for opinions on the use of the solid rock wheel for traverse grinders on cards, let me say that in my experience with them I have found them unsatisfactory and injurious to the card clothing itself.

First, let us consider the regular fillet covered traverse grinders. After a certain amount of grinding, the

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Information regarding Hubbard equipment such as magnesium alloy warp beams and stainless steel bobbins is available on request.

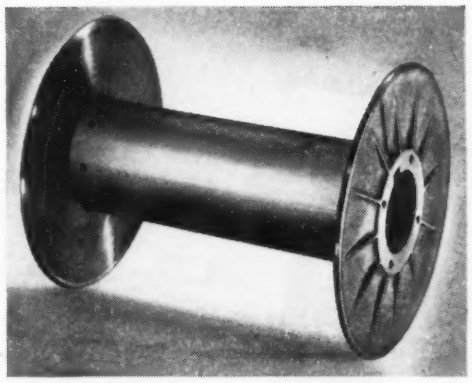

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Fig. 16
"Renewo" Globe

Fig. 1640
"King-clip" Gate

Fig. 2125
Bronze Gate

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Fig. 1430
Iron Body Gate

Fig. 1938
Steel Gate

Fig. 123
"N-M-D" Globe
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grinding fillet loses its points or grinding edge, and when this condition prevails, the right thing to do is to change the fillet. Certain mills wash the fillet to get a few more grindings from it. This is expensive in the long run as the fillet has lost its grinding edge and the wheel has to be set down deeper into the clothing in order to grind. To consider the solid rock traverse wheel, the points of the rock wheel are hard and after grinding for a certain amount of time become dull and useless as far as grinding is concerned. Then the operator lowers the wheel down a little deeper into the card clothing resulting in heavy grinding, in hooks on the wires (an evil which requires burnishing), and in temper being taken out of the wire. Now if the grinder does not lower his grinding wheel enough, you are not getting any grinding, you are only polishing the wire.

As for plough grinding for rejuvenating worn cylinders and doffers, new clothing is a lot cheaper.

In conclusion, let me say that if you keep your traverse grinders in good condition and recovered regularly with fillet, stick to them, as I don't think there is a better method anywhere at the present time. *(R-45)*

Eight "Don'ts" Listed For Loomfixer Guidance

As a loomfixer, I have made up a list of eight "don'ts" which I use as a guide in my work. I believe they will be of interest to other Round Table readers and I should like to see their comments on my code.

1. Don't walk around over the weave room and waste your time; stay on your job.
2. Don't wait for a flag; find the weak places in each loom and fix them before they fail.
3. Don't knock your overseer and second-hand to the other fellows; if they do something you don't like, talk it over with them.
4. Don't get in too big a hurry; take your time and do your work right.
5. Don't get mad with a weaver because he makes a mistake in flagging you; take down the flag and smile.
6. Don't knock the company you work for because you are not getting enough money; be saving with supplies help the company to pay you more.
7. Don't run broken parts on a loom; replace them with new parts.
8. Don't make bad cloth when working on a loom; it sometimes causes the weaver to be docked. *(R-44)*

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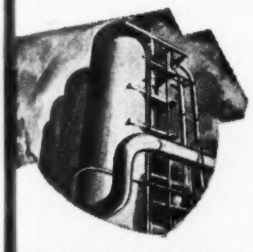

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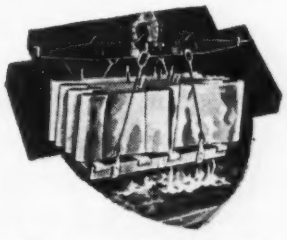
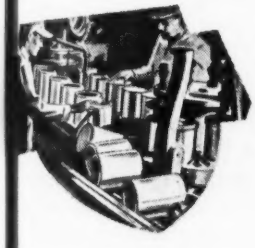
Alkylation, sulfonation, and improving color, odor, and stability of petroleum products.

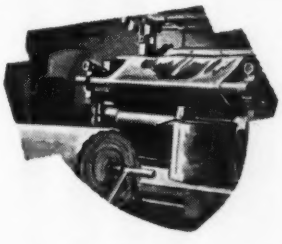
Rayon
Used in the spinning bath in rayon manufacture.



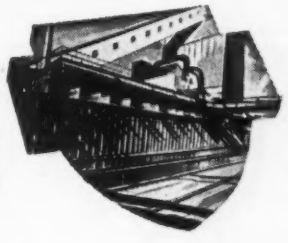
Steel
For pickling of steel sheets and castings; removes oxides and scales.



Paints
Raw material in production of pigments; for sulfonating drying oils.



Sulfonation
Sulfonating vegetable oils for water, fire, and mildew-proofing fabrics and textiles.



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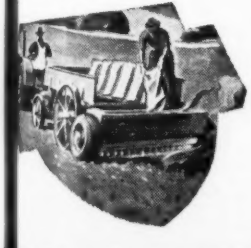

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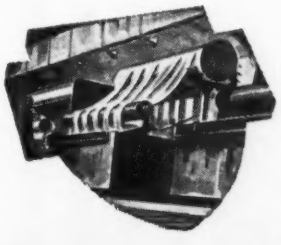

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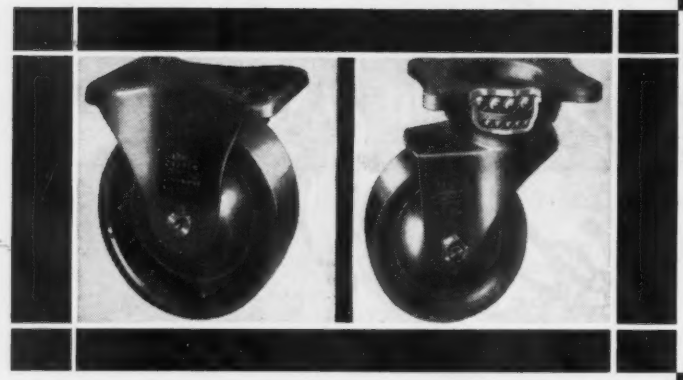

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Questions AND Answers

Spun Rayon-Cotton Regain

Technical Editor:

If the regain of cotton and spun rayon is not maintained at standard at each process, can the yarn or cloth be brought back to standard in the average package or roll?

Also, if you are making a blended yarn of 50% cotton, 25% viscose and 25% 5-denier acetate staple, how do you figure the amount of regain that is standard for the yarn,

As far as I know, no regain standards have been agreed upon for a combination of these fibers. (8978)

The yarns or fabrics may be brought back to standard by allowing sufficient time under conditions of controlled temperature and humidity to restore their normal regains. Of course, the more compact the package or roll, the longer time necessary for thorough moisture distribution; and, providing the yarns or fabrics have no sizing or finishing treatment to resist their natural tendency toward moisture regain under the proper conditions of humidity and temperature. It takes a longer time to adjust the moisture content to normal from a higher moisture content than from a lower content.

We know of no accepted standards for regain of yarns composed of cotton, viscose and acetate staples. The average regain would be affected by the proportions of the three types of staple composing the blend. If yarn such as described, viz. 50% cotton, 25% rayon staple and 25% acetate staple were conditioned for sufficient time at a relative humidity of 65%, the approximate moisture contents would be:

50% cotton at 8% moisture (approx.)
25% rayon staple at 12 to 14% moisture (approx.)
25% acetate staple at 6½% moisture (approx.)

(*Continued on next page*)

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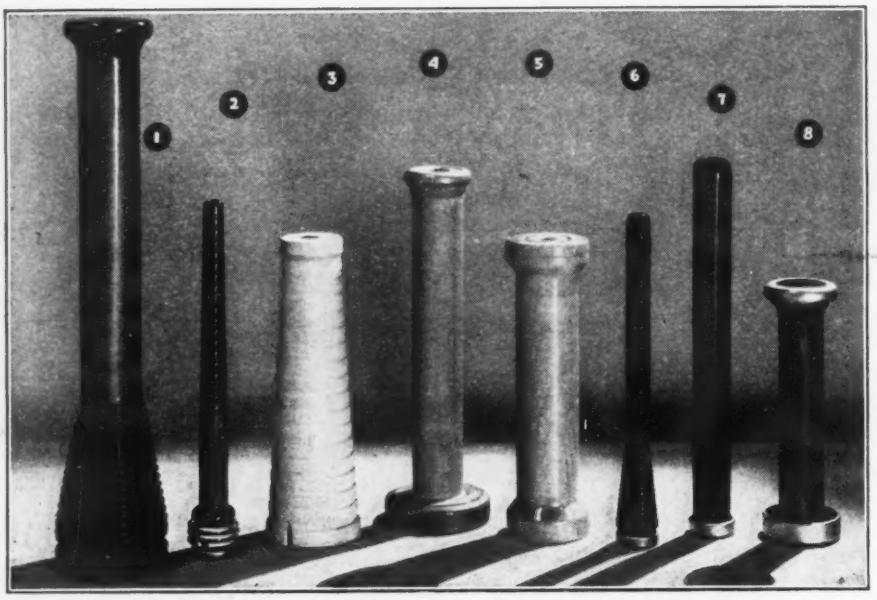

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Or, an average moisture content for the blended yarn of approximately 9% moisture will result.

Spots in Knitted Fabric

Technical Editor:

Inclosed is a sample of a bleached knitted cloth which shows red and blue flecks having a semblance of dye splashings. We wish to determine whether spots of this nature can be caused at the spinning mill or at the time of bleaching in the dyehouse. (8973)

The dye specks in the sample of bleached cloth were caused in the spinning mill. Cloth having these spots (which are very seldom seen in the gray) should be given a prior treatment with 5 to 8% sodium hydrosulphite at the boil for 25 or 30 min. before entering the cloth in the kier for the regular bleaching process. This treatment will not always remove all the spots, but it will at least lessen the depth considerably.

Finishing Woolen Fabrics

Technical Editor:

I shall appreciate it if you will outline a suitable finishing process for woolen fabrics of women's wear, such as embossed type overcoatings and fabrics for tailor-style suitings from 12 oz. to 15 oz., also for checked fabrics with bright colored combinations. (8958)

Usually the embossed type of coating can be run in a fulling machine for 20 to 30 min. with a light-bodied fulling soap. If that treatment felts or thickens up the fabrics too much, they can be handled in the cloth washer by wetting them out in cold water, draining off all surplus water, soaping up with the same light-bodied fulling soap, running the goods until they acquire the proper thickness, and rinsing off all of the soap, preferably in cold water. This procedure will take about 1 to 1¼ hr. Next hydroextract or vacuum extract; dry to 60 to 62 in., shear back and face, not too close; then, if a semi-decator is being used, run with good head of steam for not more than 3 min. Wind pieces on wooden rolls and allow to remain overnight, either in racks resting on gudgeons, or piled on the floor in square piles, the bottom pieces resting on a clean floor. If no decating machine is available, the fabrics can be run over a steam brush after shearing,

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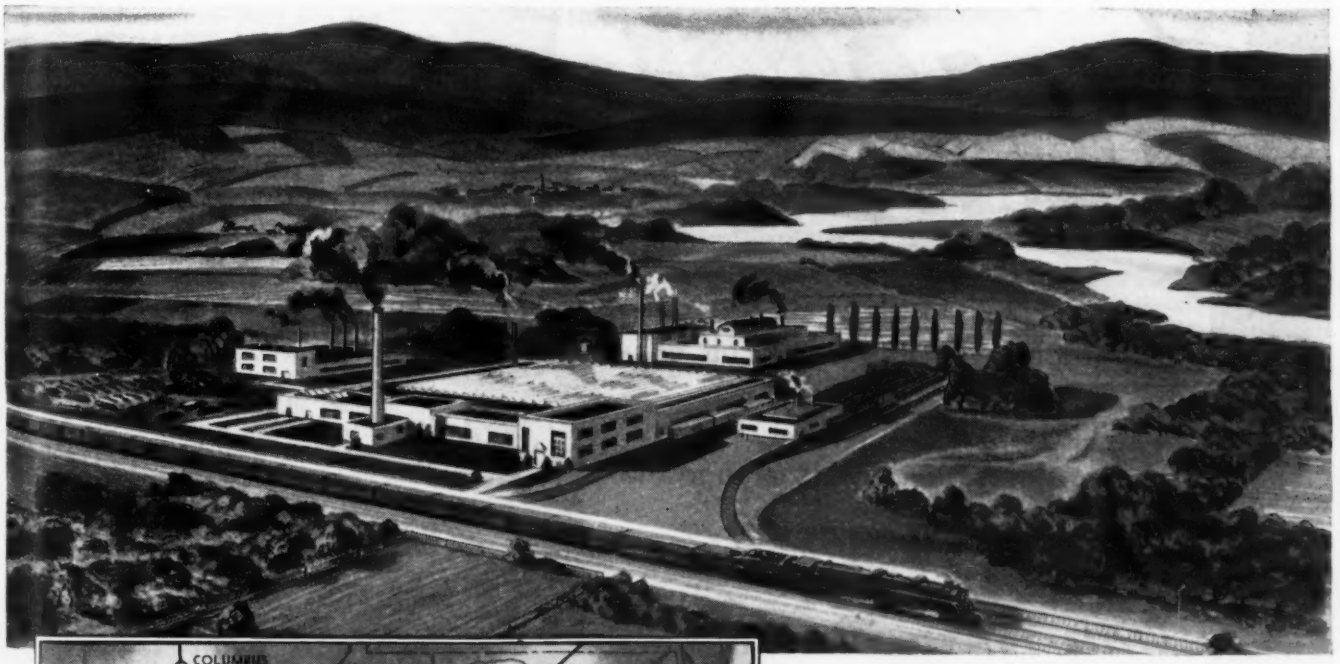

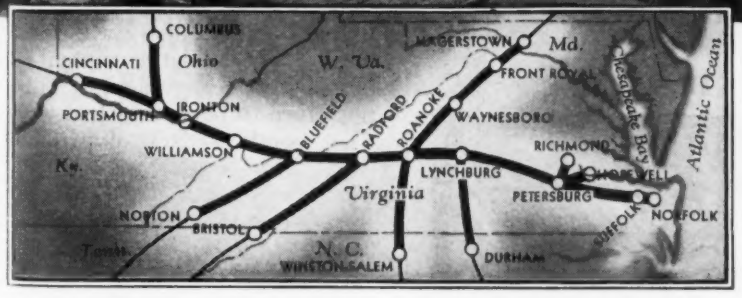

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using a good head of steam. They should be rolled up as they leave the brush and allowed to remain overnight on the rolls before being examined. Either of these treatments will tend to intensify and set the embossed effect.

Check fabrics with bright-colored combinations can be scoured with a formula consisting of 4 oz. of soap and 2 oz. of alkali per gallon. This is boiled well and then mixed with cold water, stirring all the time. Usually these fabrics can be scoured in the same manner as described for the coatings. However, if there is any sign of the colors staining the soap during a 20 min. run, a different treatment should now be given them. The gates of the washer should be opened, using no water at this time, and all the dirty lather allowed to run out. Close the gates, add 2 or 3 pails of fresh soap solution to each piece, run 20 min., and rinse with cold water to rinse out all traces of soap before extracting and drying the fabrics.

Acetate Slashing Formula

Technical Editor:

For two years we have been slashing 75-den. acetate for use in 200x72 satins and they have been weaving with reasonably good results until recently. Although we have increased our size formula higher than any we have ever used before—and the warps feel good as they leave the slasher—they invariably ball up between the harness and reed, indicating insufficient sizing.

This condition apparently started when we changed acetate yarns and at the same time started using a new shipment of gelatin. We feel that the difficulty is in the yarn as the new shipment of gelatin is satisfactory on other yarns we are using, although all of them are for lighter constructions.

What can you tell us that might help us find and correct this condition? (8967)

Any number of things might be causing the condition you mention, however, there are two clues in your inquiry that furnish a good lead. You state that an increase in your size formula (from which we assume you mean a higher gelatine content) gives a warp that feels well-sized but does not prove to be so in actual weaving. That points to lack of penetration. And it may be that you have actually worse warps now than before, although you do not so state. This may happen as a thinner size sometimes penetrates more.

In any event review your size formula. If you are not using a penetrant

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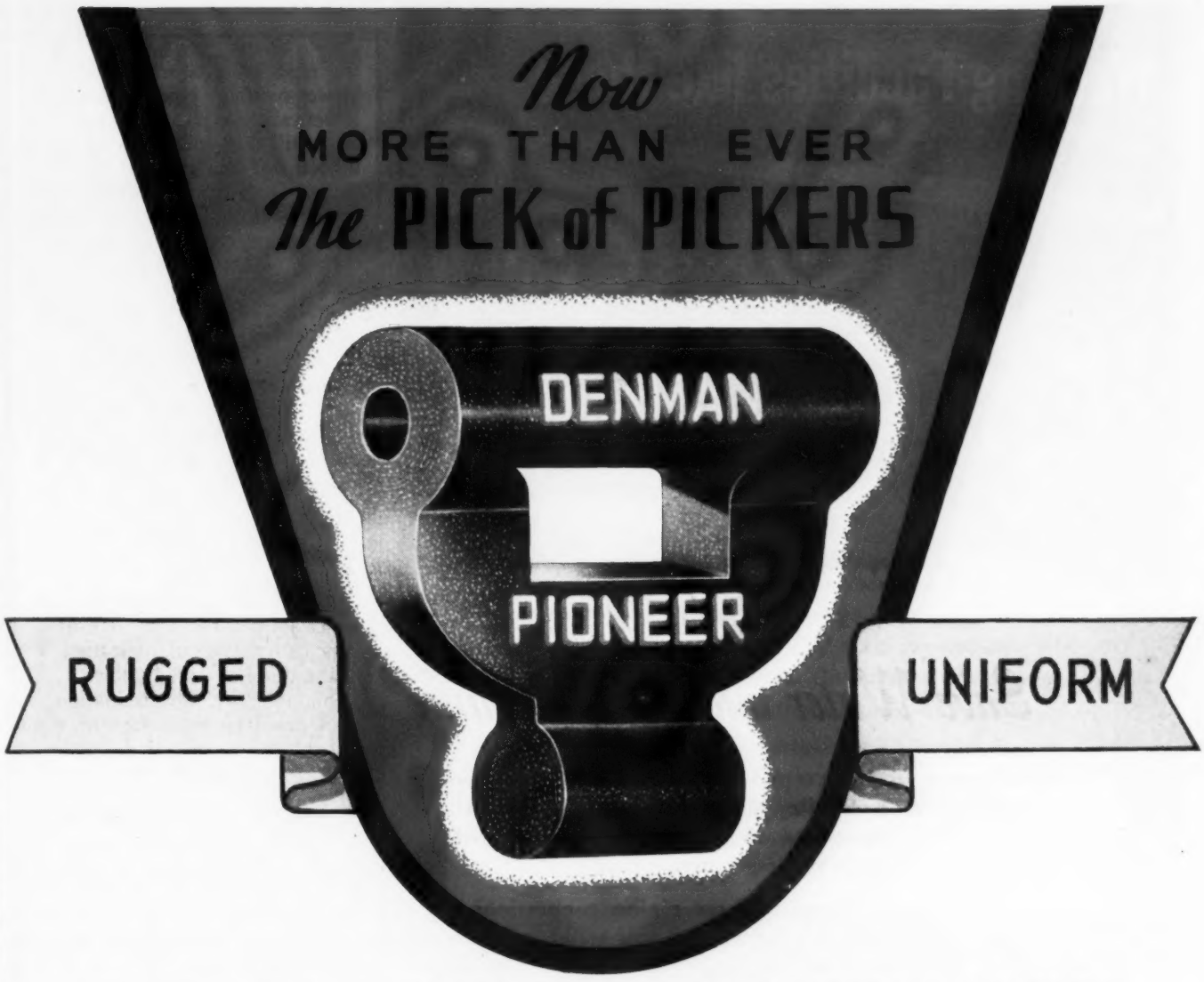

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  Toughness and resiliency combined to a degree never before attained in any picker; Denman Box Loom Pickers take greater punishment—wear notably longer.

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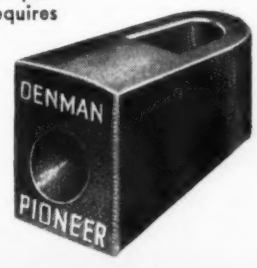
  We invite comparison by actual loom test with any other picker on the market, regardless of who makes it. We are confident you will find, as others have already found, that Denman "Pioneer" Pickers will last longer and cost less.



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Save Water and Maintenance

Over 70 per cent less water is consumed by Bradley Washfountains because 8 to 10 persons wash simultaneously, each with clean *running* water.

Therefore three piping connections—one each for hot and cold water, and one for the drain—take the place of 24 to 30 connections needed for "single-person" wash basins to serve the same number of persons. To the saving in installation and maintenance costs can be added the elimination of all individual faucets.

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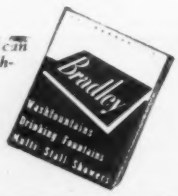
The need for adequate, modern and sanitary washroom facilities has been recognized by leaders in the textile industry. Bradley Washfountains are the choice of such leaders—good reason for getting all the data now for replacement or for new plants or extensions you are contemplating. Write for complete Catalog 4308. BRADLEY WASHFOUNTAIN CO., 2325 W. Michigan Street, Milwaukee 1, Wis.

Our Catalog 4308 can help you in washroom planning. Copy sent on request.



BRADLEY *Washfountains*

(a pine oil product or one of the newer synthetic types), start doing so. Practically every large chemical supply or textile oil house has a line of penetrants, but be sure that the one you employ is safe and suitable for your use. Then test it for the particular yarn you have, as, due to differences in finishes on the yarn, a penetrant that is effective for one acetate yarn may not be equally effective for another. Be sure to test the penetrant at the strength and temperature at which you intend to use it.

If it can be done, make size determination tests or boil-offs. You should have around 8% of size on the yarn, although the quality of the size film is fully as important as the percentage. For example, too much oil might be used which softens the film too much. This might possibly be the difficulty and is showing up only on a heavier construction. A simple film test should give an indication if this is the cause of your trouble.

Should size determination tests show an inadequate amount, again a penetrant is indicated, particularly since your increase formula did not help.

If the formula used and the yarn run were known, that might be of considerable assistance in ascertaining possible causes. Most likely a correction can be made in the formula to improve the sizing, however, the speed of the slasher may also have to be reduced. We are assuming a size box temperature of about 150° F., since results otherwise were and are satisfactory. Mention should be made however that in one instance it was found that the temperature of the size box materially influenced size penetration. This item also should be checked.

Broken Shuttle Points

Technical Editor:

Points of shuttles on W-3 woolen looms often break off in the shuttle at the box end although we use the shuttle check that comes with the looms. Can you provide us with information as to the cause of such breaks? (8962)

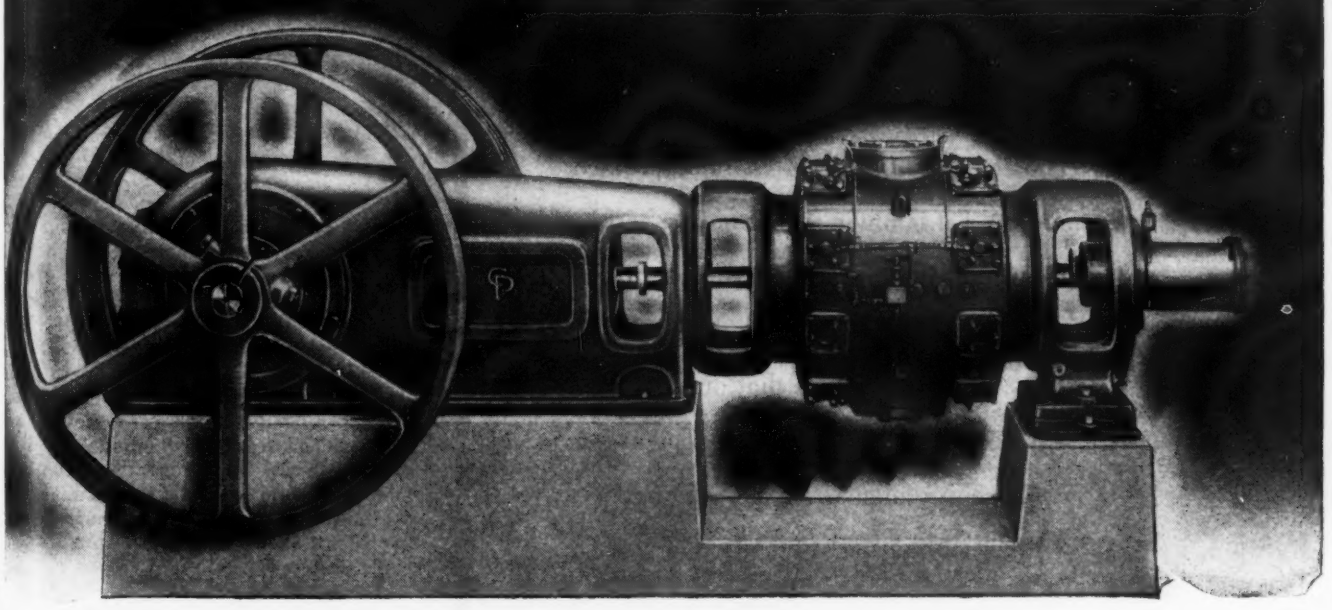
Shuttle point breakage may be caused by a number of different things. Too much power on the picking motion, binders set too tight, hard packing used on the shuttle check or allowing the shuttle to go in too far at the box end.

An excessive amount of power will cause the shuttle tip to strike the picker a hard blow which may loosen

NO OIL to cause spoilage

CP OIL-LESS CYLINDER COMPRESSORS have been developed for use where the air or gas compressed must be free from oil. No oil, grease or other cylinder lubricant is required. Piston and rod, being completely supported by crossheads, are full floating, removing all weight from cylinder walls and stuffing boxes, thereby avoiding wear of the carbon piston rings and of the hardened steel cylinder liner. Trouble-free operation and long life of wearing parts are assured. Only normal maintenance is required—no need for periodic rotation of piston rings.

CP Oil-less Cylinder Compressors are arranged for belt, motor or steam drive, in single stage and two-stage types. They are available for early delivery in a wide range of sizes and ratings. Write for literature.



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VACUUM PUMPS
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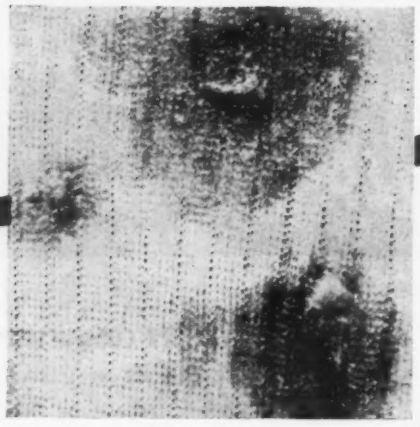
SCUM on fabrics

Eliminated with REFINITE Conditioned Water



Scum and curd very often found on fabrics can be less frequently attributed to the scouring agent used than to the condition of the water. Iron and calcium in the water destroys the soap and other scouring materials and leaves a thick, heavy deposit of insoluble grease in the machines and eventually on the fabrics. Refinite Water Conditioning equipment will remove this iron and calcium, removing the trouble caused by scum. Whatever your water problem may be, Refinite laboratory and technical experts are ready to help you. Write Refinite today. There's no obligation.

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the point and cause breakage. Have only enough power so that the shuttle clears the warp shed and does not bang off.

Binders set too tight require more power than necessary for the operation of the loom and also hold the point of the shuttle in the hole of the picker. If this condition exists there will be a strain on the point of the shuttle each time the shuttle box raises or lowers, as the point must be forced out of the hole in the picker. Adjusting the binders so that there is only enough pressure to prevent the shuttle from rebounding will overcome this trouble.

Proper adjustment of the shuttle check is also very important. If the packing becomes worn and allows the picker to go back too far, the point of the shuttle will hit the box slide a blow each time the box moves. This condition is probably the cause of most shuttle point breakage. When the picker goes in to the check too far the point of the shuttle will wear a groove into the box slide, and this hole can easily be seen. Some loom-fixers overcome this trouble by putting a piece of leather about 10 in. long and 2 in. wide between the check and the back of the picker. When this piece becomes worn it can be easily replaced.

Wool Yarn Costs

Technical Editor:

We are interested in information pertaining to woolen spinning costs in yarn sizes of 1⅛ and 1¾ run. We have always purchased our yarns and would like to compare manufacturing costs with those we have been dealing with. A breakdown of the cost per pound as to labor, overhead, oils, power, depreciation, etc., would be appreciated. The yarns in question are a blend of reprocessed wool and dyed mohair stocks. In normal times this size and type yarn could be spun on a commission basis for 16c. per pound, but we do not know the various factors making up the figure. (8946.)

Because so many variables are involved covering the raw stock used, it is almost impossible to make even an approximate breakdown of the costs. The material of the blend or the type of raw stock determines the running condition, which, in turn, determine the number of end breaks. Without this information, it is impossible to make any reasonable estimate as to cost.

BE TIGHT

There is a lot of easy spending going on nowadays, but the business man, who has been through this sort of thing before, knows it still makes sense to be thrifty.

Take the purchase of water repellents. They are supposed to make a fabric more saleable. However, if your customer says, "Never heard of it!" sales are not helped at all. If, on the other hand, he says "Yeh, that's good"—well, the repellent is worth something.

In the case of "Cravenette" water repellents, people have been saying "That's good!" for more than fifty years—and when you treat your fabrics with "Cravenette" water repellents, you get something worthwhile for your money.

Moreover, you will find "Cravenette" water repellents a good purchase for many other practical reasons. They are odorless and may be applied to wool, cotton or blended fabrics. They are accurately compounded out of many years of research and experience. They retain liquidity under high and low temperatures, are stable under wide temperature ranges and variable conditions. As you would expect, they are easy to apply, either from a washer or a standing bath. Finally, the effect on the feel and finish of the fabric is what you seek.

Have us place at your disposal our long experience with water repellents. We shall be glad to do so promptly and at your convenience.

Your fabric treated with

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BOOSTING EMPLOYEES' Morale

Cone Group to Reward Attendance Record

An attendance contest is being conducted, with two monthly awards, in the Cone Mills of Greensboro, N. C. A pennant will be presented each month to the mill of the group having the best percentage of attendance for the preceding month; and an American flag will be given for display by the department having the best attendance in each mill.

The pennant will be flown just under the Army-Navy E pennant on the flagstaff of the winning mill, while the American flag will be displayed in the winning department. Each will be kept for a one month period, then relinquished to the next month's winner.

The first month of the contest began Feb. 28 and ended Mar. 26. Each month will end on the last Sunday of the month, and the new month begins on the next day, Monday. The personnel office will be responsible for keeping the records and computing the percentages of attendance. In figuring attendance totals, both excused and unexcused absences will be counted. However, employees sent out to rest will not be counted as absences in the contest. For the week beginning Jan. 31, the first week in which records were kept, the various departments in the four mills ranged from 77.4% to 100.0%.

Aid in Job Placement of Disabled Servicemen

A panel of authorities to supply practical, "how to do it" data to industry on the successful job placement of disabled servicemen, has been formed by Industrial Hygiene Foundation located at Mellon Institute, Pittsburgh. The panel, prepared to function until the rehabilitation job is done, is headed by Dr. C. D. Selby, medical consultant, General Motors Corp., Detroit. The planel supplies materia

here's what happens before and after Waterfoil

Today's buildings can be decorated and restored for tomorrow's competitive challenge. Masonry walls such as concrete, stucco or brick can be coated with Waterfoil, the scientific contribution to masonry protection. Waterfoil is manufactured of irreversible inorganic gels . . . non-critical materials now available. The Waterfoil coating permits the masonry to breathe, allowing the escape of water vapor. Actual water absorption inwards, however, is impeded avoiding reinforcing bar rust or spalling. If you are a property administrator or maintenance executive, send for the Waterfoil literature . . . it is very important information.

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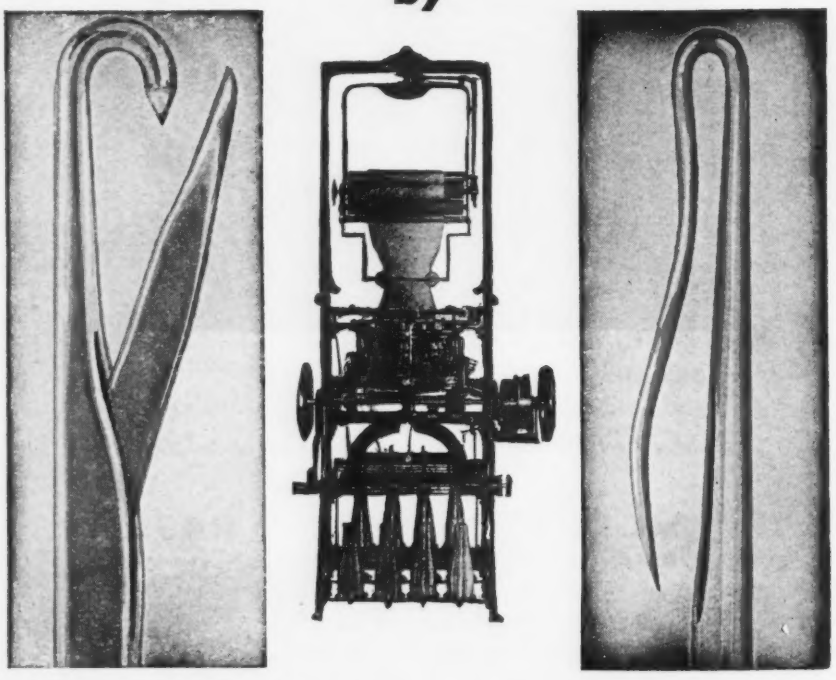

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THE BEST FABRIC ON ANY MACHINE

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COOPER'S
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PERFECT SPRING BEARD NEEDLES

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MAINTENANCE, REPAIR AND OPERATING SUPPLIES

Since 1859

CHARLES COOPER CO., INC.
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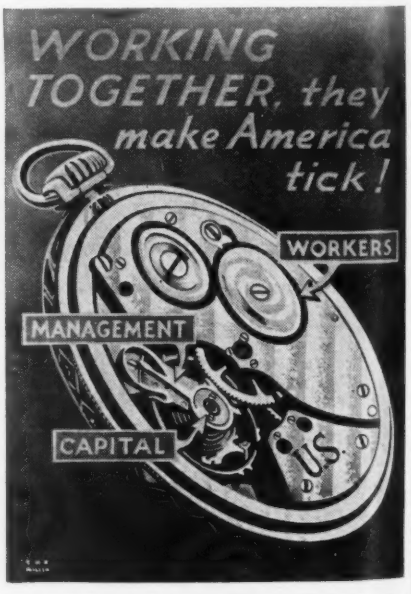
which the Foundation is publishing in a series of bulletins.

In a recent report on "Putting the Disabled Veteran Back to Work," which has just been released, Dr. H. L. Krieger, medical director, Ford Motor Co., discloses that the Ford company has always tried to hire 10% of its employees from disabled workers, explaining, "It is our impression that these men, knowing their disabilities, are less liable to accidents than normal workers because they will not take chances. We are endeavoring to handle the rehabilitation of the returned soldier just as we would handle the employment and placement of any handicapped employee." In the latest bulletin, I. Dent Jenkins, personnel manager, Harrison Radiator Division, General Motors Corp., explains a working system for finding the right job for the disabled employee.

Awarded $250 for Improved Procedure

Marshall P. Bradley, for four years an employe of the Jeffersonville Quartermaster's Depot, Jeffersonville, Ind., has received a $250 cash award, under the War Department's Better Idea competition, for having offered a suggestion for a better method of handling cotton duck for overseas shipment. Capt. J. J. Kaiserman, chairman of the Awards Committee, and also in the personnel division, explained that the Bradley suggestion had to do with wrapping of canvas and duck for overseas shipment. Under specifications this material is resistant



One of the posters supplied to industry by Kelly-Read & Co., Rochester, N. Y., to tie in with morale boosting programs. These educational messages are issued weekly under the title "Thinkamerican Series."

Aralac . . fibre of tomorrow, here today!

The crisp rayon and ARALAC covert cloth . . . developed in your mills for Spring, 1944 . . . is an important fashion first right now. The fabrics you're making today . . . those blends of ARALAC with rayon, or ARALAC with wool . . . will make history in the months to come. But the tomorrow of ARALAC is even greater than any one can imagine! The beauty, body, drape and 'feel' that ARALAC fibre blends into manipulated fabrics offers limitless possibilities for new weaves and finishes . . . entirely new fabric conceptions. Keep ARALAC running in your civilian lines today . . . in preparation for that bright tomorrow!

ARALAC, INC

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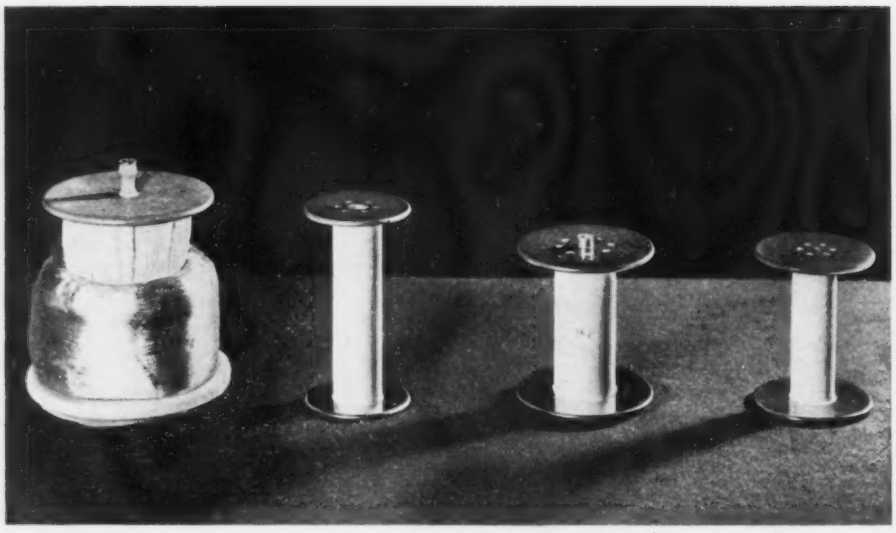
ARALAC, produced by a division of NATIONAL DAIRY PRODUCTS CORPORATION, represents but one of the many contributions this nation-wide organization is making toward the more efficient utilization of America's agricultural resources.



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Perfection!

DIASTAFOR desizing agent means perfection every time—smooth, supple, flawless fabrics that pass the most rigid tests.

DIASTAFOR saves many costly mistakes, affords economy. Chemists and mill-owners praise it highly, recommend it enthusiastically.

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to fire, water and mildew. The specifications called for it to come in to the depot wrapped in osnaberg, which was there removed and the roll rewrapped in waterproof paper. Bradley suggested that, as the material is already water and mildew proof, why not merely stencil the rolls for shipment, and omit osnaberg and waterproof paper wrapping, which will save the Government much time, material, floor space, etc.

Veterans to Get Job Offers Through Draft Boards

A plan to provide war veterans with employment opportunities has been initiated by Brown Instrument Co., Philadelphia. The plan involves cooperation with draft boards within a 35-mile radius of the company's plant. The company provides each of the draft boards within the 35-mile radius with a list ,weekly, of the jobs open at the plant, the type of men required and what experience, if any, is needed for each task. In addition, the company offers discharged war veterans an opportunity to receive instruction at the Brown school, in such cases where the veterans are qualified by experience or education to receive additional knowledge in the servicing, operation and maintenance of industrial instruments.

Donates Trophy for Speaking Contest

Harry J. Kelly, treasurer of Scott & Williams, Inc., Laconia, N. H., donated a silver trophy in honor of his father, Henry Kelly, to the winner of a State-wide speaking contest held at Laconia high school.

Complete New Personnel Course

Key officials of textile plants in the Gastonia, N. C., area recently completed a 72-hour personnel course conducted at Gastonia by the University of North Carolina Extension Division and were awarded certificates at a banquet meeting.

Textile Education Offered to Workers in Quebec

Textile education has been expanded to an appreciable degree in the Province of Quebec since the appointment late in 1943 of S. F. Toupin as Director of that type of education. Classes being held in Magog, Sherbrooke, and Drummondville are meeting with increasing success.

Hidden Charm

Yes there's "hidden charm" in this exquisitely fashioned evening dress. For the designer who created it could never have achieved the style appeal that sold it unless the material he used had been properly processed. That's why so many leading mills, converters, finishers and dyers have turned to Colgate-Palmolive-Peet for high-quality wetting, fulling, scouring and dispersing agents.

There is a C. P. P. soap or synthetic detergent for every type of fabric—for every processing problem. Ask your local Colgate-Palmolive-Peet representative for detailed information on the full line of C. P. P. processing agents that are made specially for the textile industry. Or, write to our Industrial Department at Jersey City 2, New Jersey.

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Samples are safe from scorching without constant attention of operator

EMERSON OVENS

10 Basket Oven

Emerson ovens are electrically heated and temperature is controlled by thermostat.

Fans provide air circulation in ovens.

Bone-dry weights determine moisture regain in fabrics, yarns, and raw materials.

Sensitive scales for weighing samples within the oven can be operated without opening the oven door.

Savings can be made by checking specifications for each manufacturing department.

10 basket oven for samples of one-half pound or more.

10 cylindrical baskets
8" diameter—9" deep
Or 8 baskets or reels
7" x 7" and 18" deep
or 20 large skeins dried from hooks.

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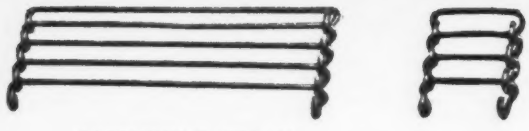

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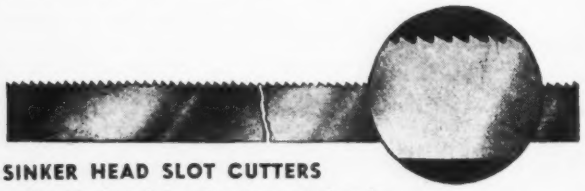
Send for bulletin giving full details on these and other products.



SINKER HEAD SLOT CUTTERS

The ideal tool for cleaning out slots in sinker and divider heads. Made in all gauges. Each one comes in a leather carrying case.

THOMAS & SKINNER
STEEL PRODUCTS COMPANY

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News of the month

Army Goods Situation Complicated. Indication that Army Service Forces is by-passing War Production Board in an effort to increase production came recently when it was reported that Lt. Gen. Brehon Somervell conferred with cotton-textile industry leaders to the exclusion of Donald Nelson and his textile assistants. Although veiled in secrecy, it is said that out of the conference came what was tantamount to a command order to the producers. A 12% increase over last year's production, or 11,700,000,000 yd. is wanted. The industry has appointed Messrs. Cone, Comer, Broughton, Cramer and Sweet as a committee to increase production.

OPA has fallen in line by ordering price increases in chambray and denims of 1¢ and ¾¢ a yard respectively, which is expected to encourage an increased production of work clothes.

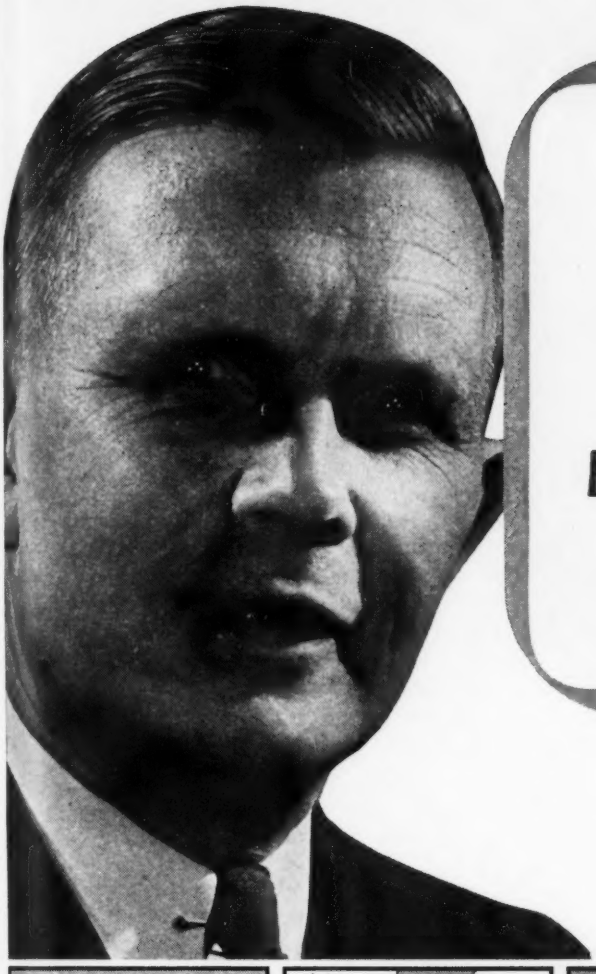
The Truman Committee of the Senate is investigating the causes of decline in production in this industry. A preliminary report has been completed which will be presented by the investigators to the full committee.

Meanwhile there is little question that some WPB officials resent Army's latest lonehand move. From the overall effect, it is feared that any discord in Washington will add to the confusion within the industry.

Meanwhile WMC was about to declare the 48-hour week for cotton textiles.

Cotton Looks to International Trade. Oscar Johnston, president of the National Cotton Council, has named a committee to work with government officials in a study of international trade possibilities for cotton after the war, and of advisability of a conference of cotton producing and processing countries to discuss trade programs.

New Army QM Inspection System. Geographic inspection of Army Quartermaster procurements will be made by inspectors within 10 separate zones throughout the county. Mills located in Pennsylvania, Delaware, Maryland,



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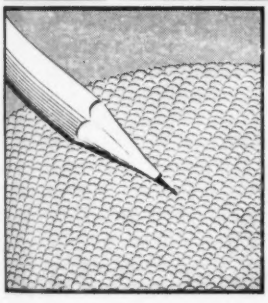
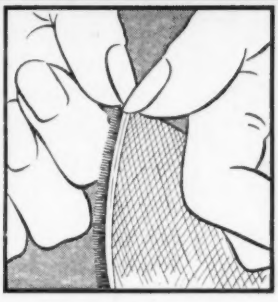
"Use LATEX for BACKING, COMBINING and COATING"

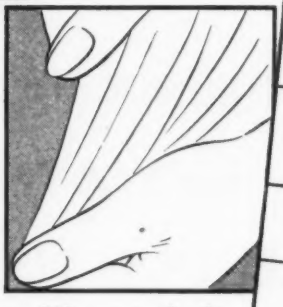
"AND DO THE JOB BETTER"



• When used for Backing, Ubatex locks the pile firmly to the fabric base.



• In Combining operations, Ubatex provides a positive, one-coat bond.



• When used for Coating, Ubatex develops a tough, flexible, contiguous film.

UBATEX CHARACTERISTICS	
Chemical Description	A water dispersed, plasticized polymer with unusual latex-like characteristics.
Ageing	Definitely superior to latex — reaches maximum strength at room temperature, making heat treatment unnecessary.
Film Strength	Ample for all backing, combining and coating operations so far tested.
Drying Speed	Slightly slower than latex but faster than all other synthetics we have tested.
Setting Speed	Grab is quicker than with latex.
Pressure Sensitivity	Negative.
Color	Naturally clear. Does not stain. Can be pigmented or dyed.
Luster	Excellent sheen.
Laundering Resistance	Appears to stand up well.

An original development of the UBS Laboratories, Ubatex is a completely synthesized latex (not a dispersed resin compound) that appears and handles similar to unvulcanized latex. Definitely superior to latex in its ageing and waterproof qualities, Ubatex is proving ideally suited for many backing, combining and coating operations. Write today for an experimental sample — describing materials and application methods involved.

Address all inquiries to the Union Bay State Chemical Company, Rubber Chemicals Division, 50 Harvard Street, Cambridge 42, Massachusetts.

UBS

UNION BAY STATE *Chemical Company*

Serving Industry with Creative Chemistry

ORGANIC CHEMICALS · SYNTHETIC LATEX · SYNTHETIC RUBBER
PLASTICS · INDUSTRIAL ADHESIVES · DISPERSIONS
COATING COMPOUNDS · IMPREGNATING MATERIALS · COMBINING CEMENTS

The J boxes in your continuous peroxide bleach system may have become a problem due to scale and deposit. One effective method to clean them out is to soak with a 5% caustic solution, preferably over a week-end.

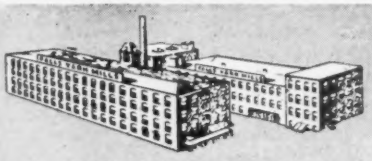
As usual, an ounce of prevention is worth a pound of cure. A better way is to prevent the formation of scale by using a purer silicate of soda, one that has a greater stability than the ordinary commercial type. Our suggestion is **Star Brand**, closely controlled for purity and stability.

Bul. 178 describing the use of silicates of soda in various textile processes is yours on request.

PQ SILICATES OF SODA

Star BRAND

PHILADELPHIA QUARTZ CO. • Dept. A, 127 S. Third St., Phila. 6



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MANUFACTURERS OF FINE WOOLEN & SPECIALTY YARNS

Falls Yarn Mills

WOONSOCKET RHODE ISLAND

SELL DIRECT

STANLEY PORTER

NEW YORK

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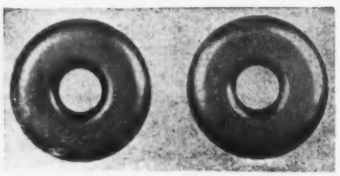
Higher Tension Efficiency with WAYNE TENSION DISCS



Wayne tension discs provide uniform tension with a minimum of wear. Higher production efficiency is assured. Constructed of hardened chrome plate steel. Write today for complete details and the savings offered by Wayne discs.

Wayne Manufacturing Co.

Honesdale, Pa.

Manufacturers of Textile Mill Supplies

West Virginia, Virginia and several counties in New Jersey will have Philadelphia QM Depot inspectors check their products as usual. Mills located outside of these districts will have inspectors from the nearest Depot check their products, regardless of material procured by that Depot.

Favors Wool Sales Now. Disposition of all Government-owned stocks of wool now while war demands guarantee a good market was recommended Mar. 16 in hearings before a subcommittee on wool of the House Agricultural Committee by Kenneth W. Marriner, head of WPB's Wool Branch. He also advised that American-grown wool be sold on a competitive basis with foreign wools even though it involves CCC in a loss. On Mar. 23 another wool auction was held in Boston. A fourth auction was held on April 6 and a fifth was scheduled for later in the month.

Form Institute in Virginia. The Institute of Textile Technology with headquarters at Charlottesville, Va., has been chartered at Richmond, Va., by a group of trustees representing 28 textile mills. Ward Delaney is listed as president and Arthur M. Allen, of Providence, R. I. is secretary. The trustees include representative mill executives, both North and South as well as prominent men from the New York commission house group.

Ray Bell Says All Military Fabric Needs Will Be Met. All military requirements for textiles will be met in the coming year, and from 40 to 50% of total production will be available for essential civilian needs, it was predicted last month by W. Ray Bell, president of The Association of Cotton Textile Merchants of New York in his report at the annual meeting of the organization. This will be done, he said, despite increasing production difficulties due to manpower shortages, inflexible prices in the face of rising labor and raw material costs, and other adverse factors.

Chemistry Teachers Meet at New Bedford. The New England Association

TEXTILE CALENDAR

Hosiery Conference and annual meeting of N.A.H.M., Waldorf Astoria, New York, Apr. 20-21.

National Assn. of Wool Mfrs., annual meetting, Waldorf-Astoria, New York, Apr. 25.

National Cotton Week, May 22-27.

American Association of Textile Chemists & Colorists, Annual Convention, Claridge Hotel, Atlantic City, N. J., Oct. 12-14.

TEXTILE BANKING COMPANY

Factoring Service

Puts your sales on a cash basis
Strengthens your cash position
Relieves you of credit losses

55 MADISON AVENUE • NEW YORK

FOR FULL EFFICIENCY

To develop the full efficiency of cards, equip them with BOOTH Card Clothing. There is a complete line; Cylinder Clothing, Doffers, Workers, Strippers, Angle Strippers, Tumblers, Fancies, Rings, Lickerins, Feed Rolls, etc.

BOOTH QUALITY Card Clothing

Has a firm foundation of fabric or leather, yet is flexible, which reduces the possibility of shelling out. All clothing is available with rehardened points if desired.

Benjamin Booth Co.

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SEA-CO SOLUBLE TEXTILE OIL

Soluble oils are important for raw stock oiling, as softeners, knitting oil, silk throwsters oils, finishing oil. The right oil for your use plays a large role in raising quality and lowering costs. We suggest you try SEA-CO SOLUBLE TEXTILE OIL in your plant.

SEA-CO SOLUBLE TEXTILE OIL

1. Has excellent lubricating value
2. Rapidly emulsifies in water
3. Is easily and completely removed by scouring
4. Will not become rancid
5. Is non-corrosive

Write for full details and sample.

THE EASTERN CHEMICAL CO.
1301 TOWER BUILDING
BALTIMORE 2, MARYLAND

NEWS OF THE MONTH

of Chemistry Teachers met at New Bedford Textile School recently. Harold B. Sturtevant of Albi Chemical Co., New York, addressed the morning session on textile finishes, showing how classroom work may be of greatest aid to industry. Henry H. Millson of Calco Chemical Division, American Cyanimid Corp., Bound Brook, N. J., spoke on various forms of light. Dean George Walker presided.

ACMA Meets. The annual convention of the American Cotton Manufacturers' Association was held at the Atlanta Biltmore Hotel, Atlanta, on April 12. Details will be given in the next issue of Textile World.

Textile Trading Grows More Difficult. Cotton goods trading remains upset by the succession of changes coming from both WPB and OPA. Trading is spotty and limited in nearly all departments. . . . Wool goods lines have been opening for fall allotments; deliveries are likely to be slower than expected. . . . Growing scarcity of rayon is an old story. . . . Hosiery moves well in full-fashioned branch. . . . Underwear for civilians likely to reach peak scarcity next fall.

This and That. Increased production of 80-square print cloths is provided for in amendments to WPB Limitation Order L-99 made effective last month. . . . Philadelphia Quartermaster Depot is arranging to assist contractors to dispose of surplus goods left on hand as a result of termination of contracts. . . . A new amendment to Dyestuff Conservation Order M-103 authorizes use of additional quantities of dyes over regular quotas if needed for production of essential military or civilian fabrics. . . . A fabric utensil for cooking used by our airmen and the Medical Corps is made of rubber impregnated asbestos. . . . New plastic fireproof upholstery, developed by United States Rubber Co., has been ordered by the Navy as mandatory equipment for all combat ships, to provide added protection against fire. . . . Commercial Factors Corp., New York, has celebrated the 15th anniversary of its formation. . . . Alabama Cotton Manufacturers Association held its annual meeting Apr. 18 at Birmingham. . . . Parker School District, Greenville, S. C., is offering a loom fixing course for women. . . . Institute of Technology & Plant Industry has been established at Southern Methodist University particularly to study better types and uses for cotton, flax, etc. . . . Georgia Section of American Chemical Society met Mar. 18 at La Grange under auspices of Callaway Institute.

QUALITY RICHMOND PRODUCTS

FOR BETTER RAYON YARN DYEING USE

RAYOSOFT

•

BETTER softener for wool yarns

BETTER finish for Rayons

BETTER Sulphur color Developer

BETTER after treatment for nub yarns

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Write for FREE TRIAL Sample—Enough for a Trial Run.

Our Technical Department is at Your Service

RICHMOND OIL, SOAP & CHEMICAL CO., Inc.
153-155 RICHMOND STREET
PHILADELPHIA 25, PA.

He's Our Boss NOW

Uncle Sam is getting all of our production efforts for the duration of the War.

But our research and development work is still going ahead and you will profit by its results in greatly improved machines for yarn throwing, as soon as peace returns.

U. S. ACME TWISTERS FOR SPOOL OR HEADLESS PACKAGE

U. S. JUMBO FACE DRIVE TWISTERS FOR LARGE HEADLESS PACKAGE WORK

U. S. ACME DOUBLER TWISTERS—LARGE PACKAGE

U. S. REDRAWS AND SPOOLERS

U.S. TEXTILE MACHINE CO.
SCRANTON, PENNSYLVANIA, U. S. A.

POWELL PERFORMANCE IS PRE-DETERMINED

We are always ready and willing to give you advice on the care and maintenance of your valves. But valve failures are not always due to lack of knowledge—or neglect.

In countless instances valves fail to perform as they should because they're not of correct design and material for the services in which they are installed.

By consulting POWELL Engineering *first* you can avoid these failures because *Powell performance is pre-determined* — by experts.

The Wm. Powell Co.

Dependable Valves Since 1846

Cincinnati 22, Ohio

A 4-inch, Stainless Steel Flush Bottom Tank Valve for 150-lb. W. P. It is one of the complete line of Powell Flush Bottom Tank Valves, that are especially designed to drain metal tanks (with or without steam jackets), glass or vitreous lined tanks or autoclaves. A special feature in the design of these valves, is that the valve proper is one complete unit that can be removed readily from the tank for inspection or regrinding, if necessary. Powell Flush Bottom Tank Valves are available in sizes from 1″ to 6″.

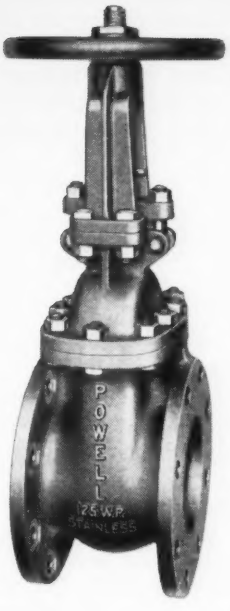
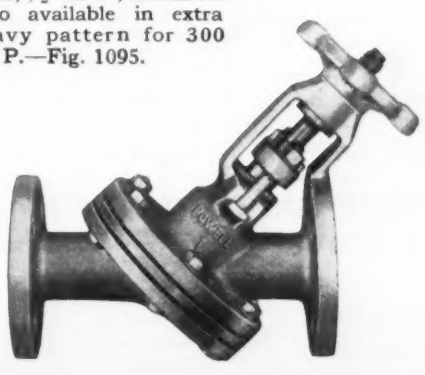


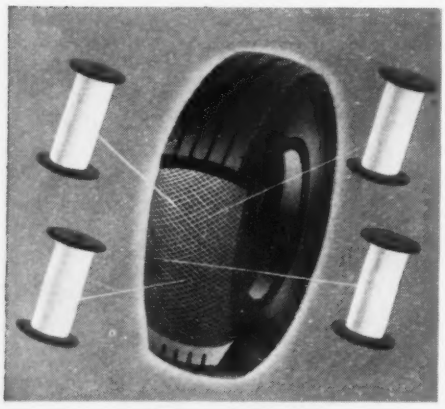
Fig. 2453—125-pound Stainless Steel O. S. & Y. Gate Valve, with flanged ends, outside screw rising stem threaded through bronze bushing in upper yoke arms, full flanged bolted bonnet and taper wedge solid disc. Shelf is provided on yoke for suspending gland out of stuffing box when renewing packing. Sizes, 2½″ to 30″, inclusive.

Fig. 1097—150-pound Stainless Steel Separable Body—Reversible Seat "Y" Valve that offers quick renewability or interchange of seat. Provides straightway flow area through valve body. Seat plate is reversible and renewable, having a machined seat surface on both faces. Lower half of body can be turned through an arc of 180° to make 90° Angle Valve for special piping arrangement and to eliminate extra fittings. Non-rotating stem rises through a threaded bronze yoke bushing that revolves with handwheel. Flanged ends only. Sizes, ½″ to 4″, inclusive. Also available in extra heavy pattern for 300 W. P.—Fig. 1095.



POWELL VALVES

VICTOR SERVICE ENGINEERING on the JOB



Victor Cooperation helps Speed "Tooling-up" for Rayon Tire Yarns

Greatly increased demand for rayon tire fabrics requires production on a scale unheard of before the war. The mills at work on this big project are applying plenty of ingenuity to the problems involved, and are getting excellent results from such new developments as deeper rings for plying and cabling.

In traveler selection, twisting supervisors are taking full advantage of the traveler "know-how" of Victor Service Engineers. This experience, added to their own, saves time in "tooling-up" —in getting output on schedule and quality up to the standards required.

The job of producing a tire fabric suited to new conditions is typical of the tasks that face mill men today. Such problems will increase as synthetics come into wider use. Since Victor Service Engineers are mill-trained, and have up-to-the-minute information on the new fibers, they can "talk your language", and give you useful advice in the adjustment of present methods to meet new conditions. And you can get this Victor Service *fast* . . . write, wire, or phone.

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VICTOR
Ring Travelers

WAR PRODUCTION— 1944 TEXTILE PROBLEM

(*Continued from page* 80)

in the element of lethargy toward war problems and there is too much inclination to take all-out war's responsibilities lightly. Labor shares this responsibility, too. Today labor is enjoying the highest earnings in two decades, increases far more than cost of living increases, and yet absenteeism is a serious factor and production continues to decline in spite of sound incentive plans. Because we are remotely removed from the actual fighting, we have ceased to look upon ourselves as vulnerable. Thus a stimulation of patriotic fervor in meeting today's problems requires more drastic steps than heretofore. There will have to be a strong revival of productive zeal in industry if we are to expect greater production, and thus responsibility faces both labor and management.

FIRM ACTION NECESSARY. More recently, as lines have tightened, it has become necessary to insist on much more positive measures to restore 1942 and early 1943 production levels. Past policies of facilitating production with a minimum of regulation have shown signs of being inadequate. In many instances, also, it has been necessary to call for help on other government agencies, mainly in connection with problems of manpower, prices, and wages. These agencies, before acting on requests for relief, generally demand first to be shown that the WPB has exercised all of its powers to secure the needed results. It has happened in several instances recently that by firm, incisive action the Textile Bureau of the WPB has highlighted issues and secured more prompt and effective cooperation from other agencies by showing that it had first done its part.

There is no panacea for all of our textile productive ills at the present time. Nor is the solution of the problem impossible. It is complicated and it is difficult, but with adequate cooperation from government, industry, and labor, there is a strong chance that production can be maintained and even increased in spite of present handicaps.

However, we realize full well that we have reached the war stage when ordinary methods will not suffice; and in the same spirit of cooperation we are determined that no method which offers a reasonable assurance of success shall be overlooked or neglected.

We call upon private management and labor and the other public agencies concerned to join with us in the creation of the greatest record in textile production ever beheld in order that the world may know that textiles have done their part in winning the war. Halfway measures will not suffice. It's all-out for Victory!

MAINTENANCE OF MOTOR STARTERS

(*Continued from page* 101)

arranged to be automatically effective when the equipment is idle because the normal heat of resistors and coils is sufficient while in operation. Drip-proof, water-tight, and dust-tight enclosures may be provided.

Moisture in conduits is a frequent source of grounds. Grounds cause false circuits that cause unexpected starts, prevent stopping by normal means, eliminate overload protection, and cause unsatisfactory operation. Any measures to prevent moisture in conduits are good insurance against trouble. When serious grounds develop, they are eliminated by cleaning the conduit and installing new wiring. The insulation resistance should be checked regularly so that the pressure of grounds can be detected and eliminated before trouble occurs.

All wiring should be kept in safe and good condition. Vibration will cause broken wires. Oil, moisture, dirt, and grease cause insulation breakdowns. Chafing or rubbing against unprotected edges soon wears away all insulation at that point. Temporary wiring is hazardous. Nuts and lock nuts should be tight. Defective wiring is an outstanding cause of electrical troubles and fires. Regular inspection is necessary.

High temperature is a sure sign of trouble. However, one must be sure that the temperature is excessive. To touch a cabinet or coil or motor and decide it is too hot is not a safe procedure because safe operating temperatures are often higher than one can comfortably "feel" with the hand. The best procedure is to know what temperature is considered safe and then actually measure it.

Here are the highpoints that should be checked to keep motor starters in good operating condition. They must be free of oil, dirt, and moisture. No oil should be used on contacts or bearings of contactors and relays. Connections should be tight and wiring should be safe. Movable parts of contactors and relays must move freely and without friction. Contacts should be clean and tight with correct pressure and not worn too thin. Arc-rupturing devices must be in operating position.

We're as near as your nearest letter box

Even though our production today is given over 100% to war work and our representatives have been kept pretty close to home by travel restrictions, we want you to know that we are here to serve you when the need arises. If you have any problems whatsoever in connection with the operation of any piece of Proctor boarding or preboarding equipment, telephone or write us at once. You'll find—despite wartime manpower shortages and the difficulties in travel—that we're as near as your phone or letter box. The same is entirely true if you have any postwar problems you'd like to discuss. Even now our engineers have plans for the boarding and preboarding equipment to meet tomorrow's increased demands. For your future good it will certainly pay you to discuss your equipment needs with us today!

NOW IS THE TIME

It is none too soon for you to be giving careful consideration to your postwar equipment needs. A little time-out now will undoubtedly save you a considerably more costly "time-out" period when the conversion comes. Now is the time to let Proctor engineers assist you in planning for the new machinery that will help you increase your postwar profits.

PROCTOR *Hosiery* DRYERS

MANUFACTURED BY

PROCTOR & SCHWARTZ · INC · PHILADELPHIA · PA.

Blinking and flickering of dying fluorescent lamps not only annoy busy war workers but cause ballasts to overheat and sometimes fail. That's serious. Then your maintenance man has a costly and time-consuming job on his hands.

You can cut lighting maintenance to a minimum by installing G-E Watch Dog Fluorescent Starters — FS-40 for 40-watt lamps and FS-100 for 100-watt lamps. The Watch Dog eliminates annoying blink and flickering automatically and positively by cutting itself out of the circuit. Replacements are fewer because the Watch Dog lasts considerably longer than ordinary starters. Under specified test conditions, the FS-40 outlasts an average of ten 40-watt lamps. And most important of all, the Watch Dog safeguards against *hot* ballasts by preventing dying lamps from being started needlessly. All this adds up to less major repairs when manpower is critical.

Our new catalog tells how to use fluorescent accessories for best lighting results. You can obtain your free copy by writing to Section G441-109, Appliance and Merchandise Dept., General Electric Co., Bridgeport, Conn.

Hear the General Electric radio programs: "The G-E All Girl Orchestra", Sunday 10:00 P.M. EWT, NBC. "The World Today" news every weekday 6:45 P.M. EWT, CBS.

BUY WAR BONDS

GENERAL ELECTRIC

(Continued from page 148)

eters such as those for liquids and for air are covered and numerous different types of mountings are illustrated. Specifications are included covering temperature ranges, length of scale and other essential data for installation.

10. "Infra-Red at Work," is the title of a booklet being offered by C. M. Hall Lamp Co. This booklet covers the history of infra-red heating and applications to various industries, including the textile industry. Also contained is information on the use of infra-red heating for textile mills and radiant heating equipment and how it is engineered for efficiency.

11. Rayon throwsters will find a booklet outlining Nopco Treatment No. 2, for throwing high twist rayon hosiery yarns helpful. This booklet is being offered by National Oil Products Co. The treatment described is a method of soaking the hosiery yarn previous to throwing with water emulsified synthetic waxes. Regardless of manufacture, denier or pretreatment on the yarn, the treatment may be used on all types of rayon hosiery yarns. Applications and control, as well as methods of testing and adjusting the bath are described.

12. Oil-retaining porous bronze bearings are covered in Stock List No. 2, being offered by Bound Brook Oil-Less Bearing Co. Various types of bearings in different sizes and shape and notably the self-aligning type bearings are described. Other essential information such as the chemical and physical properties, tolerances, application data and detailed installation by standard practice methods without machining are covered in this listing.

13. Solving Industrial Crimes. Case No. 29, is described in a booklet published by Esterline-Angus Co., Inc. A graph indicates that a 50% labor loss existed and a graphic wattmeter was used to investigate. It was found that actually management was to blame for this loss.

14. "Service Procedure for Ball Bearings," is the title of a 12-page bulletin being offered by New Departure Division, General Motors Corp. This booklet covers in simplest terms all of the steps from dismounting, cleaning, judging condition, to remounting of ball bearings. It is well illustrated with drawings and photographs covering various steps.

Book Reviews

Financing New Equipment

FINANCING EQUIPMENT FOR COMMERCIAL AND INDUSTRIAL ENTERPRISE, by Saulnier and Jacoby; National Bureau of Economic Research, New York; 95 pp, $1.50.

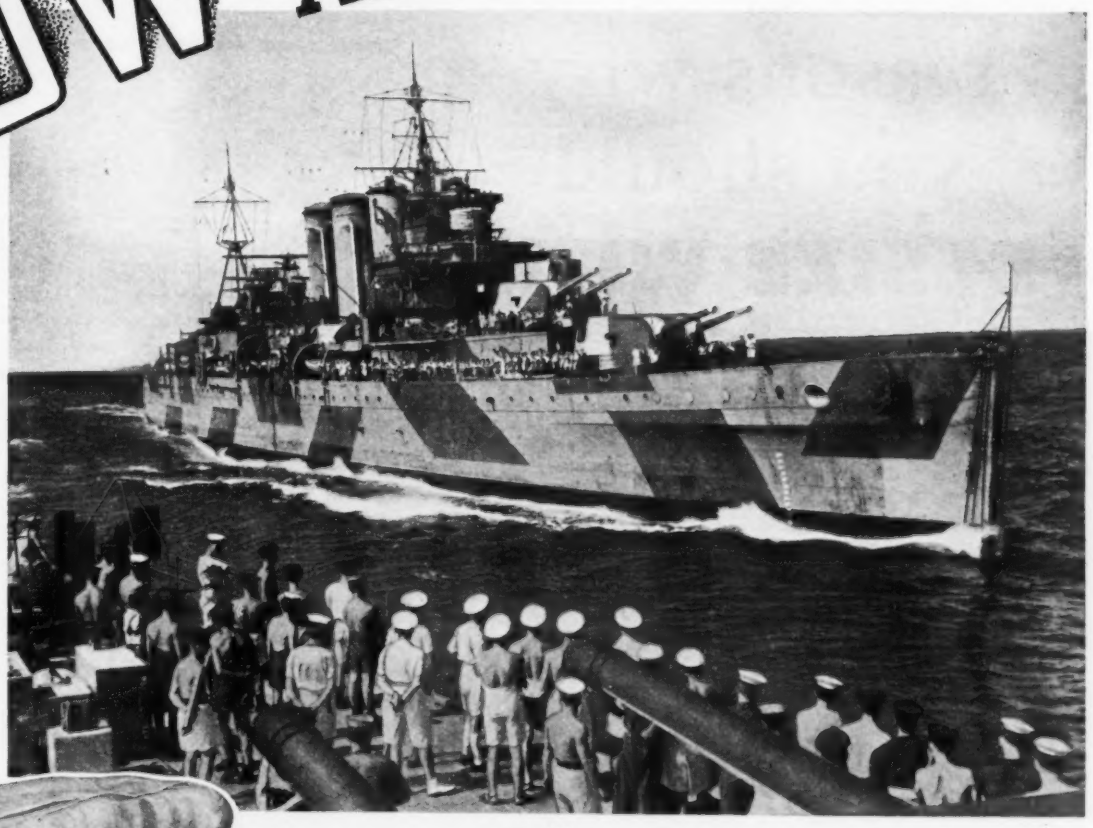
Use of instalment financing in the purchase of commercial and industrial equipment promises to contribute much toward meeting the postwar problems of reconversion and expansion. Its extensive use by industrial and commercial concerns appears probable because the procedure makes it possible for the machinery or equipment to be paid for out of income which it helps to produce. This lightens the burden on the purchaser, and enables the financing agency to carry a minimum risk during the pay-out period because of the systematic reduction in the amount of debt involved. Analysis of terms on which this and others sorts of financing are available has been made in this book by Prof. Neil H. Jacoby, University of Chicago, and Prof. R. J. Saulnier, Barnard College.

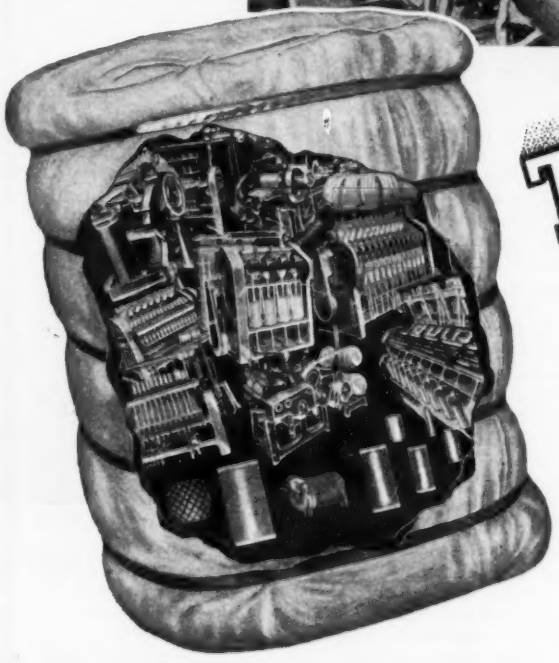
Worth Street Over the Last 100 Years

THERE WERE GIANTS IN THE EARTH IN THOSE DAYS, by Floyd W. Jefferson, Iselin-Jefferson Co., 90 Worth St., New York, N. Y.; limited distribution.

This interesting booklet records an address by Mr. Jefferson at a National Newcomen Dinner held in his honor. His title is taken from the sixth chapter of Genesis, but the giants he refers to are the prominent men in Worth Street over the last 100 years, including A. D. Juilliard, Seth M. Milliken, William Deering, Myron B. Taylor, James W. Cannon, Fuller E. Callaway, George Fabyan, Moses Cone, and many others. He gives brief sidelights concerning these men and tells something about the firms which they founded. He also includes a brief history of textile manufacture and a glimpse into the postwar international situation.

NOW ALL OUT TO WIN!





THEN—

You will no doubt wish to make alterations, replacements and possibly additions to your plant.

We commenced making Textile Machinery in 1795 and we hope that you will give us the opportunity to offer you our services.

We are makers of Combing, Drawing, Spinning and Twisting machinery on the English and Continental systems.

We also make a variety of Twisting Frames for all manner of fibres.

PRINCE-SMITH & STELLS LTD.

WORSTED MACHINERY MANUFACTURERS

KEIGHLEY (Yorkshire) ENGLAND

5 reasons why you should DESIZE WITH EXSIZE*

***EXSIZE,**

the standard enzyme desizer

1. Safe, even for the sheerest fabrics. Contains no harsh alkalis or chemicals. Gentle, thorough action. Cannot weaken cloth.
2. Works evenly and rapidly. Leaves materials soft, elastic, and supple—with good "hand."
3. Easily handled and stored. Simple to prepare and use. Keeps well in cool storage.
4. Uniform results. Never does a spotty job. Turns out same clean, absorbent fabrics every day.
5. Does an effective job of desizing at very low cost.

Use our laboratories for your tests. No obligation. Or, if you prefer, a trained Pabst field man will gladly work with you in your own mill. Write for our free booklet.

Pabst Sales Company

CHICAGO, ILLINOIS

Warehouses at New York, and Textile Warehouse Company, Greenville, S. C.

Copr. 1944 Pabst Brewing Company, Milwaukee, Wisc.

NEWS ABOUT Men

John W. Wallace is giving up his law practice to become active head of Statesville Cotton Mills, Statesville, N. C., holding the office of president. After the resignation of **F. B. Bunch, Sr.** as secretary and treasurer and general manager of the Statesville mills, the other officers of the mill are: **W. C. Sykes,** vice president and general manager; **D. E. Kennedy,** secretary and assistant treasurer; **F. B. Bunch, Jr.** assistant secretary; **C. A. Sykes,** superintendent.

Ernest L. Olrich, president of Munsingwear, Inc., Minneapolis, Minn., was guest of honor at a luncheon given in his honor by Munsingwear executives last month.

J. Burton Frierson, of Dixie Mercerizing Co., was recently elected president of the Durene Association, New York. **Wm. H. Suttenfield** of American Yarn & Processing Co., is now vice president and **J. P. Holt** of Aberfoyle Mfg. Co., is treasurer.

Landon Thomas, president of John P. King Mfg. Co., Augusta, Ga., and **Samuel H. Swint,** president of Graniteville Mfg. Co., Graniteville, S. C., have been elected members of the board of directors of the Citizens & Southern National Bank, Savannah, Ga.

Alex, Wm. B. and **H. F. Shuford,** of Hickory, N. C., recently established an annual scholarship at Greater University of North Carolina in memory of their grandfather, pion-

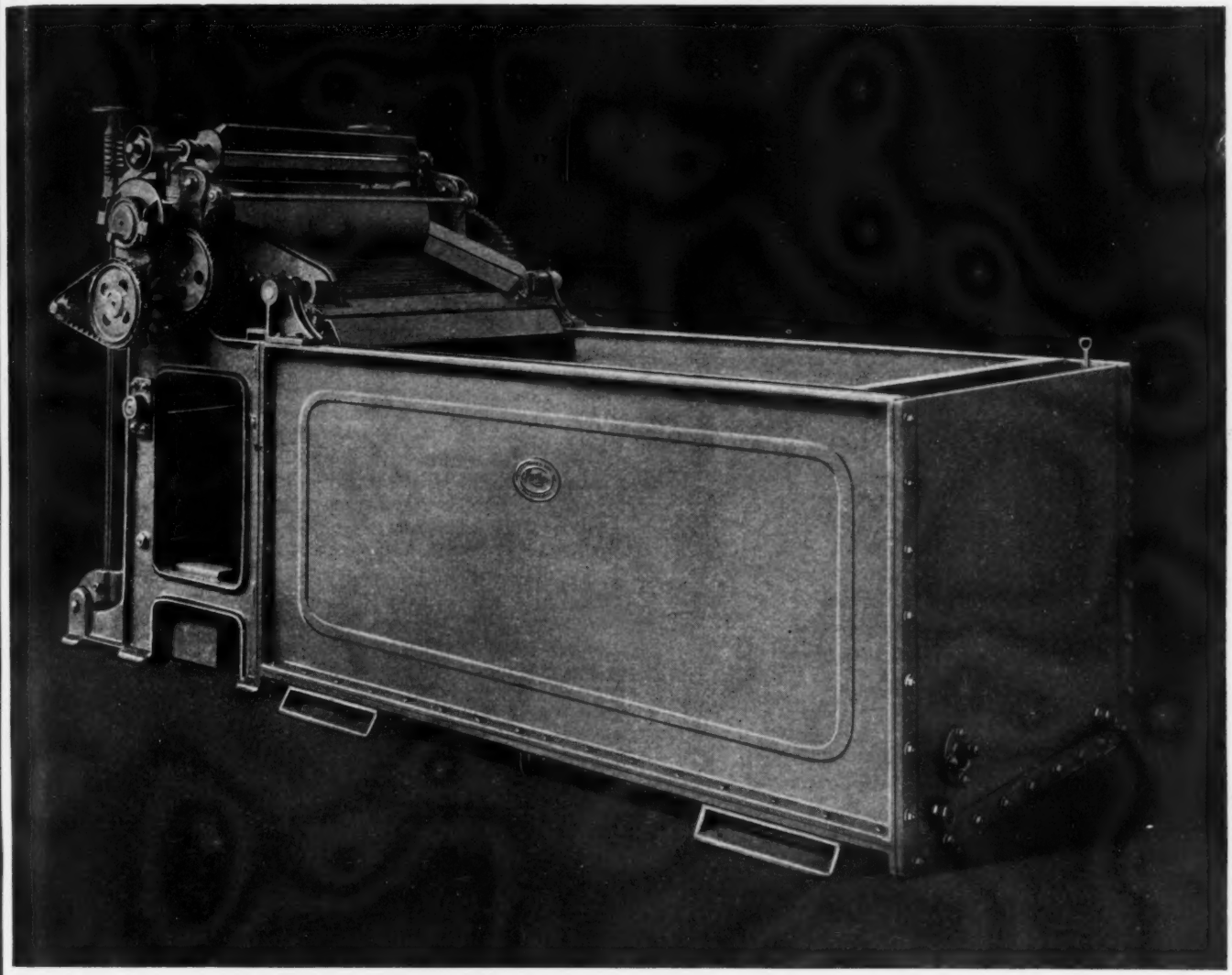
Winn W. Chase Joins Aridye Corp.

Winn W. Chase has resigned as executive editor of TEXTILE WORLD to become director of technical publicity and market research for Airdye Corp., Fair Lawn, N. J. He will supervise these activities of the company, including the investigation of markets for new products and the study of the postwar needs of those branches of the textile industry served by Airdye Corp. and associated companies.

Mr. Chase specialized in chemistry at Brown University and served in the Chemical Warfare Service during World War I. In 1929, after ten years of experience in the textile industry, much of it with Mount Hope Finishing Co., he joined the editorial staff of TEXTILE WORLD. First a member of the technical department, he succeeded Edwin D. Fowle, now editor-in-chief, as head of that department in 1937. For the last six months he has served as executive editor.

At a dinner given in March in Mr. Chase's honor, Mr. Fowle said: "I have been closely associated with Winn Chase long enough thoroughly to appreciate and admire his fine qualities as an editor and a friend. He is a conscientious and intelligent worker and I am confident he will faithfully and effectively serve Airdye Corp., which is to be congratulated for having secured him."

Mr. Chase is author of numerous articles dealing with technical and economic aspects of the textile bleaching, dyeing, printing, and finishing industry, and is a contributor to the Encyclopaedia Brittanica and Collier's Encyclopaedia. He is a member of American Association of Textile Chemists & Colorists, Society of Dyers & Colourists (England), American Association of Textile Technologists, American Society for Testing Materials, and Textile Research Institute.



THE PRACTICAL MACHINE FOR INDIGO DYEING WOOL STOCK

THE Hunter Indigo Dyeing Machine, when used in continuous range with Hunter Automatic Feeding, Rinsing, Extracting and Drying Equipment, affords a straight line continuous production not available with other methods.

This Hunter machine consists primarily of a tank, a basket of corrosion-resistant perforated sheet metal for holding the wool, and a pair of squeeze rolls. The kettle is heated with live steam by a modern arrangement.

The operation is simple: The basket is filled with wool, submerged in the vat and allowed to stand the necessary time. The basket is then raised by means of either an air or an electric hoist, and the wool is passed through the squeeze rolls and delivered into a proper receptacle where it is allowed to oxidize.

Wool dyed by this method is completely penetrated by the dye liquor. Even and uniform shades are produced, free from crocking or smutting. Furthermore, the stock is left in perfect condition, retaining all its softness and pliability. The Hunter Indigo Dyeing Machine handles the stock easily, and only one man's operation is required.

These Indigo Dye Machines are available to take charges from 100 to 250 pounds, and are in use in many mills now operating on Navy contracts.

FOR COMPLETE DETAILS, WRITE

JAMES HUNTER MACHINE CO.
NORTH ADAMS, MASSACHUSETTS
FOUNDED 1847

THE ROLE OF CHEMISTRY In the Development of Textiles

NO. 1 OF A SERIES

THE POOR APOTHECARY
with a great idea

The Eighteenth Century was a century of ideas. In cafes along the Seine, in taverns and parlors throughout the American Colonies, ideas were being shaped, destined to change the world.

Carl Wilhelm Scheele, Swedish apothecary and chemist, was a man of ideas . . . with research as his vocation, his pleasure, his way of life. Many of his experiments bore fruit—such fruit, indeed, that Scheele did more for cotton printing than any other one man.

Working in a dingy, badly equipped pharmacy, he discovered chlorine in manganese ores. This discovery, in the hands of the Berthollets, father and son, was translated into the modern processes used to bleach all cellulose fibers.

The invention of the copper roller, by Thomas Bell, in 1775, is generally thought of as the beginning of modern printing, but without Scheele's work this printing process could not have been put to practical use.

Before his time, printed cotton was a luxury beyond the reach of the average person because the bleaching process alone took from four to six months. Thanks to Scheele, the bleaching was done in two to six hours, and every pretty girl, however poor, could deck herself out in a gay printed cotton frock.

Carl Wilhelm Scheele, true citizen of his enlightened century, died in 1786, at the age of 44. He was poor all his life—but he left the world richer.

BURKART-SCHIER CHEMICAL CO.

Manufacturing Chemists for the Textile Industry. In peace and war, our products are always on the job improving the finish of yarns and fabrics.

CHATTANOOGA, TENNESSEE

BURK-SCHIER

PENETRANTS DETERGENTS SOFTENERS REPELLENTS FINISHES

NEWS ABOUT MEN

eer cotton manufacturer of that State. The scholarship winner is to be selected by the State Chapter of the United Daughters of the Confederacy, and may attend either the Chapel Hill or the Raleigh branch of the University of North Carolina.

Myron S. Freeman, formerly vice president and general manager for The Bell Co., Worcester, Mass., has been elected president and general manager. **Frederick R. Edington,** formerly president, has become chairman of the board. **Weslay V. E. Terhune** is vice president; **Neill Houston,** vice president, assistant-treasurer and clerk; **Frank C. Smith, Jr.,** treasurer.

J. Linzee Weld, vice president in charge of manufacturing for Textron, Inc., selling agency for Atlantic Rayon Corp., is maintaining an office at 52 Chauncy Street, Boston. Mr. Weld was formerly president and treasurer of Suncook Mills, Suncook, N. H., purchased by the Atlantic Rayon Corp. **L. R. Buckner,** sales agent in New England and New York State for Atlantic, will maintain an office at the same Boston address.

Henry Schwartz has resigned as vice president of Union Trust Co., Jamestown, N. Y., to become vice president of National Worsted Mills, Falconer, N. Y., effective March 31. **William Goldman** has been named secretary and assistant general manager of National Worsted Mills.

Miss Eleanor Taylor has been elected assistant vice president of the Chatham Mfg. Co., Elkin, N. C. She is the first woman to be elected an official of the company. Miss Taylor has been associated with Chatham since 1927, serving as secretary to **A. L. Butler,** vice president and acting president during the absence of **Thurmond Chatham** now in Navy service.

Hugh M. Grey, treasurer and general manager of the Hugh Grey Hosiery Co. and the Concord Knitting Co., Concord, N. C., has been appointed chief of the hosiery section of the WPB, to succeed **Carl Kincaid,** who was advanced to the directorate of the knit goods branch of the textile, clothing and leather goods division of the WPB.

T. M. Barnhardt, Jr., secretary and treasurer of Barnhardt Mfg. Co., Charlotte, N. C., has been appointed to the Office of Price Administration industry advisory committee representing manufacturers of flameproof cotton insulation materials.

MYRON S. FREEMAN, new president of The Bell Co., Worcester, Mass.

C. L. Chandler, who retired Jan. 1 as vice president and general manager of Jackson Cotton Mills at Wellford and Iva, S. C., has been elected mayor of Gaffney, S. C. Mr. Chandler, a resident of Gaffney for the last 26 years, was superintendent of the Gaffney Mfg. Co. for 15 years.

H. O. Williams, former auditor and office manager of Adams-Millis Corp., Salisbury, N. C., was made assistant secretary of the company on Mar. 15 and **H. A. Millis** of High Point was added to the board of directors. Mr. Millis is a brother of J. E. Millis, president and chairman of the board, and fills a vacancy existing on the board.

W. A. Moorehead, manager of Joanna Textile Mills Co., Goldville, N. C., has been reelected vice president of the Blue Ridge Boy Scout council.

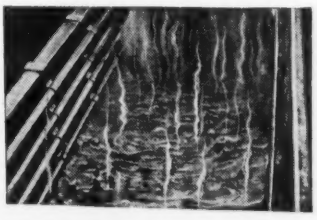
Harold J. Davis, consultant on industrial fire prevention, Tulsa, Okla., has been honorably discharged from his war service in fire prevention and control. He was director of fire-fighting operation at Dutch Harbor when that base was under Jap attack. He has recovered from the wounds received at that time, but has not yet announced his business plans. He is the author of several books on fire control as well as a speaker on that subject.

Fred Atkinson, superintendent of Bradford spinning at the plant of Stephen Spinning Co., Manchester, N. H., has

TELLURIUM LEAD DATA SHEET

SUBJECT: *Elevated Temperatures in Acid Equipment*

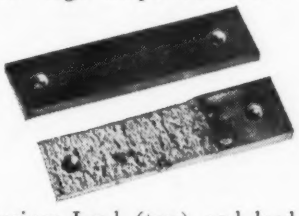
Heat accelerates corrosion: Every plant man concerned with the maintenance of acid handling equipment recognizes *heat* as Equipment Enemy No. 1.



Aside from its effect on the physical properties of corrosion-resistant metals, heat accelerates corrosion. Solutions and gases easily handled at room temperatures become increasingly destructive as the heat indicator rises.

In a number of plants Tellurium Lead has made it possible for equipment to operate satisfactorily at temperatures which made short work of the lining and piping materials previously employed—as the typical testimonials below will corroborate. For this reason it is generally recognized as the "high temperature lead."

Flash test: Laboratory proof of Tellurium Lead's improved corrosion resistance at elevated temperatures is furnished by the flash test:

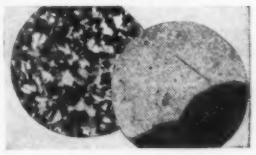


In a typical test, Tellurium Lead (top) and lead without tellurium (bottom) were immersed in 96% sulfuric acid at 581° F. for three minutes.

The weight loss of the Tellurium Lead (due to corrosion) was 0.97% while that of the lead without tellurium was 5.11%.

Tellurium Lead's greater corrosion resistance at elevated temperatures, as well as its generally superior performance under heat changes, vibration and stress-corrosion, undoubtedly result from a combination of the characteristics enumerated at right, which distinguish it from lead without tellurium.

1. More stable grain structure: One factor contributing to its corrosion resistance at elevated temperatures is Tellurium Lead's stability of grain structure under prolonged heat exposure. All metals tend to change their granular formation at certain heat levels. This recrystallization or "grain growth" is generally believed to have a marked effect on acid resistance and physical strength.

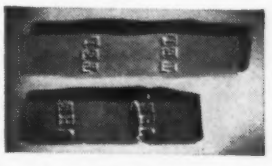


Through the addition of tellurium, the recrystallization temperature of lead is raised from about 22° F. below zero to more than 200° F. Thus Tellurium Lead is more stable—freer from grain growth than lead without tellurium, even at temperatures higher than those to which lead equipment is ordinarily subjected.

The accompanying photomicrographs show the grain structures of Tellurium Lead (left) and lead without tellurium (right) after annealing six months at 302° F. The grains of the lead without tellurium "grew"; those of Tellurium Lead remained the same size.

2. More uniform grain structure: Another factor is Tellurium Lead's generally more uniform and finer grain structure. As a result, its surface is smoother—there is less possibility of pitting and local corrosion.

3. Work-hardens: Tellurium Lead has the ability to strengthen under stress. Physical stress actually increases its tensile strength and makes it more fracture-resistant than before. For example,



these strips of Tellurium Lead (top) and lead without tellurium (bottom) were stamped and pulled out at equal rates in a tensile testing machine. Note how the Tellurium Lead was toughened by the stamping, how it work-hardened and developed strength, whereas the lead without tellurium was weakened—and fractured.

Who uses Tellurium Lead: Tellurium Lead is widely used in contact with sulfuric acid and sulfates, phosphoric acid and chromic acid; also in contact with pickling, electroplating and other corrosive solutions.

Types of chemical operations in which Tellurium Lead is employed include: chlorinations, reaction chambers, reductions, pickling, sulfonations.

Typical installations: agitators, aprons, drums, ducts, fans, flooring, heat exchangers, heating and cooling coils, kettles, pans, stills, table tops, tanks, vats.

☆

Easily applied: Tellurium Lead may be bent, seamed, flanged, burned, in the same manner as chemical lead.

TYPICAL TESTIMONIALS

One user of Tellurium Lead reported that, eight months after installation, "the lining in our tub showed little if any corrosion due to the effect of the 10 per cent boiling sulfuric acid to which it is exposed."

• • •

Another user—whose equipment is subjected to temperatures ranging up to 180° C.—says, "We find Tellurium Lead withstands chemical action to a much greater extent than the material used previously."

• • •

The engineer of another plant which used Tellurium Lead tubing for three years in a submerged combustion process where the temperature in places approaches the melting point of lead wrote, "The tubing is still in use and in excellent condition."

TELLURIUM LEAD

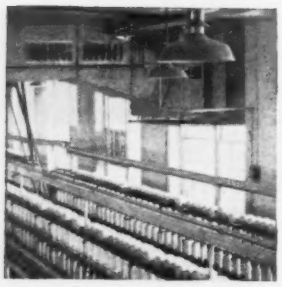
What it is: Tellurium Lead of our manufacture is time-tested St. Joe chemical lead alloyed with a small quantity of tellurium. It gives the advantages of this well-known chemical lead plus new ones.

Available forms: Tellurium Lead is available in sheet or pipe form or fabricated in coils for heating and cooling purposes.

For further information or advice regarding the use of Tellurium Lead, write:

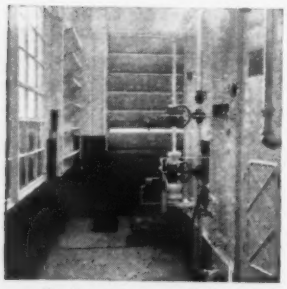
NATIONAL LEAD COMPANY—New York 6, Baltimore 3, Buffalo 3, Chicago 80, Cincinnati 3, Cleveland 13, St. Louis 1; National-Boston Lead Co., Boston 6; John T. Lewis & Bros. Co., Philadelphia 7; National Lead & Oil Co. of Penna., Pittsburgh 12; Georgia Lead Works, Atlanta; American Lead Corp., Indianapolis 6; Master Metals, Inc., Cleveland 16; The Canada Metal Co., Ltd., Toronto, Montreal, Winnipeg, Vancouver.

VITAL HELP
for old Spinning Rooms and Weave Rooms



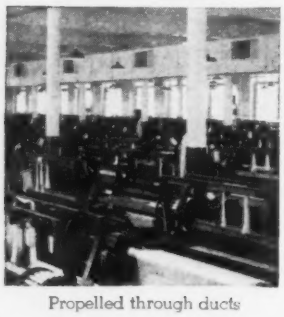
Air enters through Airchanger unit

Regain higher and more dependable. Greater strength and more uniformity in numbers.



Or through central station air washer

Drafting of Fibers smoother and more compact. Waste and fly reduced to a remarkable degree.



Propelled through ducts

Fewer Breaks. Not as many stops or piecings. Not as many adjustments. Cleaner and very much more comfortable rooms.

Automatic Shutters let heat out

Better Product. And very often as much as 2% more production.

Certified **CLIMATE** with its exclusive method of control has been known to PAY FOR ITSELF in a year, or less.

Parks-Cramer Company

Fitchburg, Mass. Charlotte, N. C.

resigned to set up his own plant in Lowell, Mass. It will operate as the Atkinson Spinning Co.

Austin Carter, formerly divisional merchandise manager for Hudson Bay Co., Vancouver, has now been appointed sales manager for Mercury Mills, Limited, Hamilton, Ontario. He will take over the work of **Hugh Mockler,** former sales manager for the company, who has been appointed general sales and merchandise manager.

Eugene Towery, sales manager of the Hoover Hosiery Co., Concord, N. C., has been elected president of the Concord Rotary Club.

Raymond Mace, who has been an employee of Manville Jenckes Corp., Manville, R. I., for 25 years, in charge of the laboratory, has been appointed technical director in charge of quality control in the plant, research work, and laboratory control.

Horace L. Poley, Lansdale, Pa., has taken over the southern territory of William Iselin & Co., with headquarters at Charlotte, N. C. For the last eight years he had been with the Dexdale Hosiery Mills, Lansdale.

C. H. Wilcox and **Carl Harnisch** have been elected directors of Santiam Flax Growers, Oregon. **Harry Asbahd, Douglas Bradley** and **Charles Hart** have been reelected. Holdover directors are **Albert Harnisch** and **A. L. Page.**

Fred A. Ratchford, of Gastonia, N. C., has been named employment supervisor of the Ranlo and Modena plants of Burlington Mills at Gastonia. For the last several years he has been connected with the Gastonia schools.

STEPHANIE CARTWRIGHT, who has been placed in charge of "Fabrics by Cartwright," a new division of the Roth Fabrics Corp., New York.

LOUIS S. FRYER, production manager of Industrial Rayon Corp. for the last four years, who has been named vice president and production manager. He joined the company in 1931.

Thomas W. Mills has resigned as general sales manager of Great Lakes Thread Co., Detroit, Mich. Prior to joining that company in 1940 he had been for 12 years branch and regional manager in the Southeast and Southwest with headquarters at St. Louis for Max Pollack & Co.

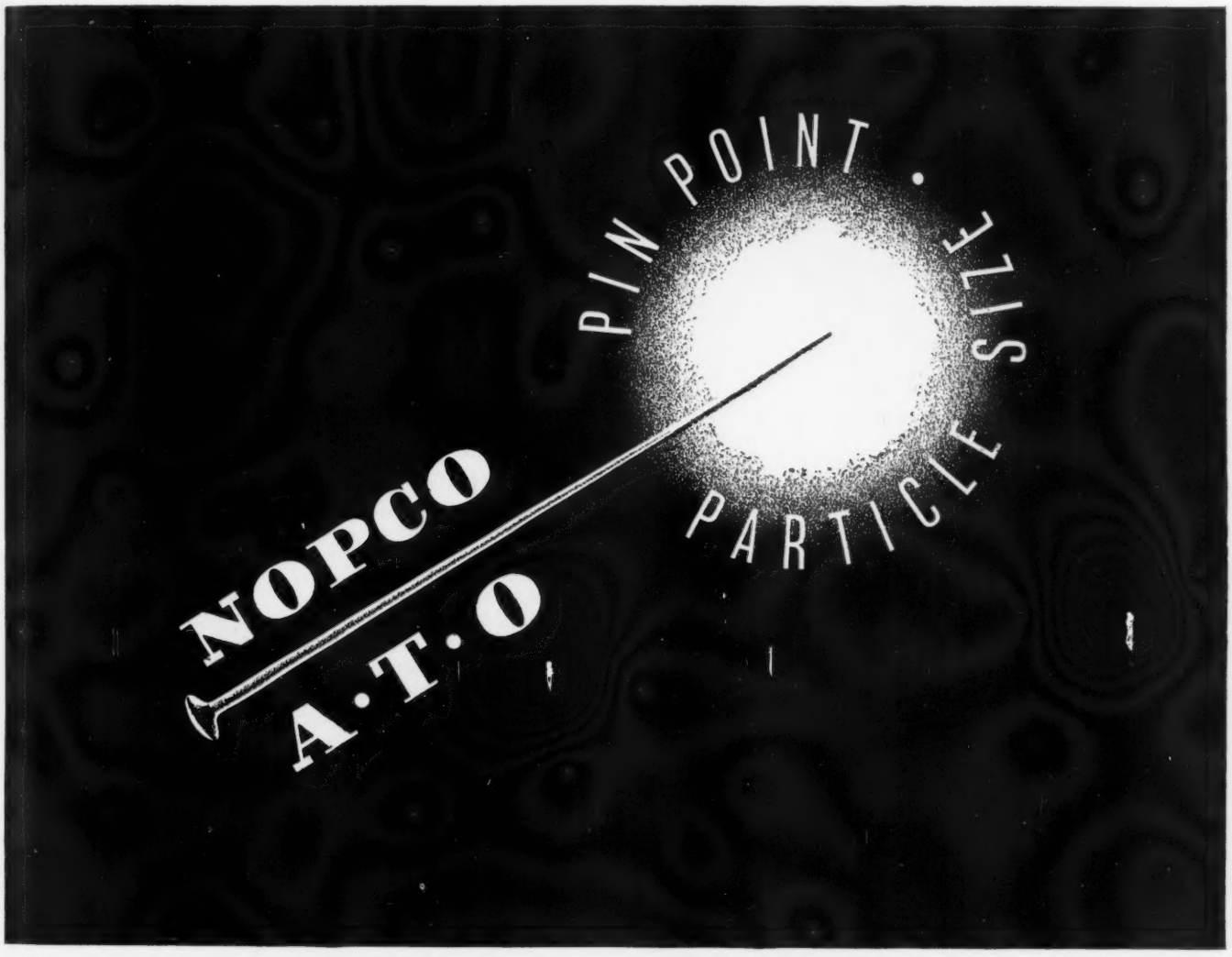
Levon M. Yacubian has been appointed manager of the mill of The Barre Wool Combing Co., Ltd., at South Barre, Mass., where he has been superintendent since 1938. **John B. Hinchliffe,** formerly assistant superintendent, has been named production superintendent. **John B. Colleran,** formerly assistant superintendent in charge of personnel, is now assistant manager in charge of costs, and **Herman A. Sayles,** formerly in the Boston office of the company, is assistant manager in charge of personnel. From 1928 to 1938, Mr. Yacubian was with Stillwater Worsted Mills, Harrisville, R. I., as manager of the top department.

Henry Harden, plant manager of Chicopee Mfg. Co., was toastmaster at the annual banquet of mill supervisors in Manchester, N. H., Feb. 24. Guests included **Norton Smith,** company representative from New Brunswick, N. J.; **Gus Leinhard,** assistant president; **John Shaw,** company agent, and **George Spoffard,** staff organizer.

Marion Wright, Woodruff, S. C., formerly with the Federal Reserve as an auditor, has become an efficiency accountant at the Riverside & Dan River Cotton Mills, Danville, Va., as of March 1.

What has the point of a pin to do with

WATER REPELLENCY?



SIMPLY THIS. 97 *microns* can perch comfortably on the point of a pin. And the particles of ATO—Nopco's new improved product which imparts water repellency to all types of fabrics—are of *micron size. They are as fine as that.*

Such uniform particle fineness gives Nopco ATO this advantage. It disperses readily in water to form a stable *emulsion.* And through its stability, this colloidal one-bath water repelling material suspends evenly in water, spreads uniformly throughout the fabric, and imparts a degree of water repellency not materially diminished by several washings or dry cleanings.

Nopco ATO leaves a satisfactory handle to the goods. It meets the Government's spray-rating tests. It's economical and easy to apply. And it's equally suitable for imparting water repellency to cloth or suitings for light weight sports apparel—Mackinaw cloth, showerproof overcoating and other heavyweight materials—industrial drills and other cotton fabrics—or rayon piece goods.

Write for full information today.

NOPCO A·T·O PIN POINT PARTICLE SIZE

NATIONAL OIL PRODUCTS COMPANY

Boston • Cedartown, Ga. Harrison, N. J. Chicago • Richmond, Calif.

"TEXALOX" THE GREATEST IMPROVEMENT IN TAKE-UP ROLL COVERING IN YEARS!

"TEXALOX" is a heavy durable cloth coated with uniformly graded, evenly spaced granules. This surface is sprayed with a patented moisture proof non-deteriorating metal coating. The granules give a positive—a surer gripping action with uniform tension. Thus protecting against cutting or chaffing of the fabric. "Texalox" is a greatly improved, safe, economical covering.

"Texalox" is being successfully used in the drawing of many types of fabrics from fine rayons to coarse duck. Having a comparatively flexible, heavy, cloth backing, "Texalox" is quickly, easily applied to the rolls by cementing or gluing. It stays put without creeping, bulging or breaking at any speeds.

You can prove these advantages of "Texalox" without cost. Just write us giving length and diameter of roll, the type of fabric you produce and we will send you free, a "Texalox" roll covering. Write today to The Carborundum Company, Niagara Falls, N. Y. Manufacturers of Aloxite Fillet Cloth — grinding wheels — sharpening stones and coated abrasives.

Abrasive Products by CARBORUNDUM

(Carborundum, Aloxite and Texalox are registered trade marks of and indicate manufacture by The Carborundum Company)

NEWS ABOUT MEN

Worth Burrell, formerly a mill engineer with Berkshire Fine Spinning Associates, Inc., Providence, R. I., has been named head of the engineering department.

James A. Toole has been made superintendent of the Manville Mill of Manville Jenckes Corp., Manville, R. I. He had been in charge of cotton weaving since 1936. He succeeds the late Eugene C. Hamlett. **John F. Brogden** has been appointed superintendent of the yarn division, to succeed **Elliot B. Grover,** who becomes head of the yarn manufacturing division of the textile school of North Carolina State College, as previously reported.

Henry Lanier has become assistant superintendent of Exposition Cotton Mills, Atlanta, Ga. He was formerly with Anniston Mfg. Co.

M. D. Pike is now overseer of spinning at the Wellford, S. C., Plant at Jackson Mills.

J. A. Morrall, now overseer of carding at the Wellford, S. C. Plant, of Jackson Mills, was previously second-hand at Clinton Cotton Mills.

Men in Armed Services

J. O. Thomas, formerly president of the Southern Textile Association, who has been on active duty as captain with the U. S. Army, is now stationed in the civilian personnel office at Camp Pickett, Va.

Charles H. Haase, who was superintendent of the Richmond, Va., plant of E. I. du Pont de Nemours & Co. before he entered the Army Air Forces, was recently promoted to lieutenant colonel. He is serving as director of the Army Air Service Command School at Robbins Field, near Macon, Ga.

Raymond Avery Moody, formerly with the cotton office of Bibb Mfg. Co., Porterdale, Ga., has received his commission as a second lieutenant, Army Medical Administrative Corps.

Miss June Dickson, Raleigh, N. C., the first woman to graduate from the Textile School of North Carolina State College, and who has been a designer for Burlington Mills, Burlington, N. C., before entering the services, is now an ensign in the WAVES. After receiving her commission at Northampton, Mass., she was assigned to the Navy's bureau of accounts and supplies in Washington.

Edward G. Eyerly has been promoted to lieutenant colonel in Q. M. Corps. He is stationed at the Chicago Q. M. Depot.

Edward C. Hartnett, for many years with the Cotton-Textile Institute, New York, is now at the U. S. Naval Training Station, Sampson, N. Y.

H. Paul Bridges, who received his degree in textile engineering from Clemson College in 1935 and served as designer for Cliffside Mills, Cliffside, N. C., prior to entering the service in 1942, recently was promoted to major. He has been overseas with the Army Quartermaster Corps.

ROBERT R. SPILMAN, contracting officer for women's clothing at the Philadelphia QM Depot, has been promoted to the rank of major. Major Spilman was formerly president of Appalachian Mills, Knoxville, Tenn., and had an interest in Rocky Creek Mills, Turnersburg, N. C. He is a graduate of the Philadelphia Textile School.

Warren Richard Garrett, who since graduating from the North Carolina State College Textile School in 1937 has been associated with Southeastern Cottons, Inc., has been commissioned an ensign in the U. S. Naval Reserve and has reported to the University of Arizona at Tucson for indoctrination. He was assistant manager of the military fabrics department of Southeastern Cottons when he entered the service.

Karl F. Inderfurth, assistant to the officer-in-charge of the Inspection Branch, Philadelphia QM Depot, has been pro-

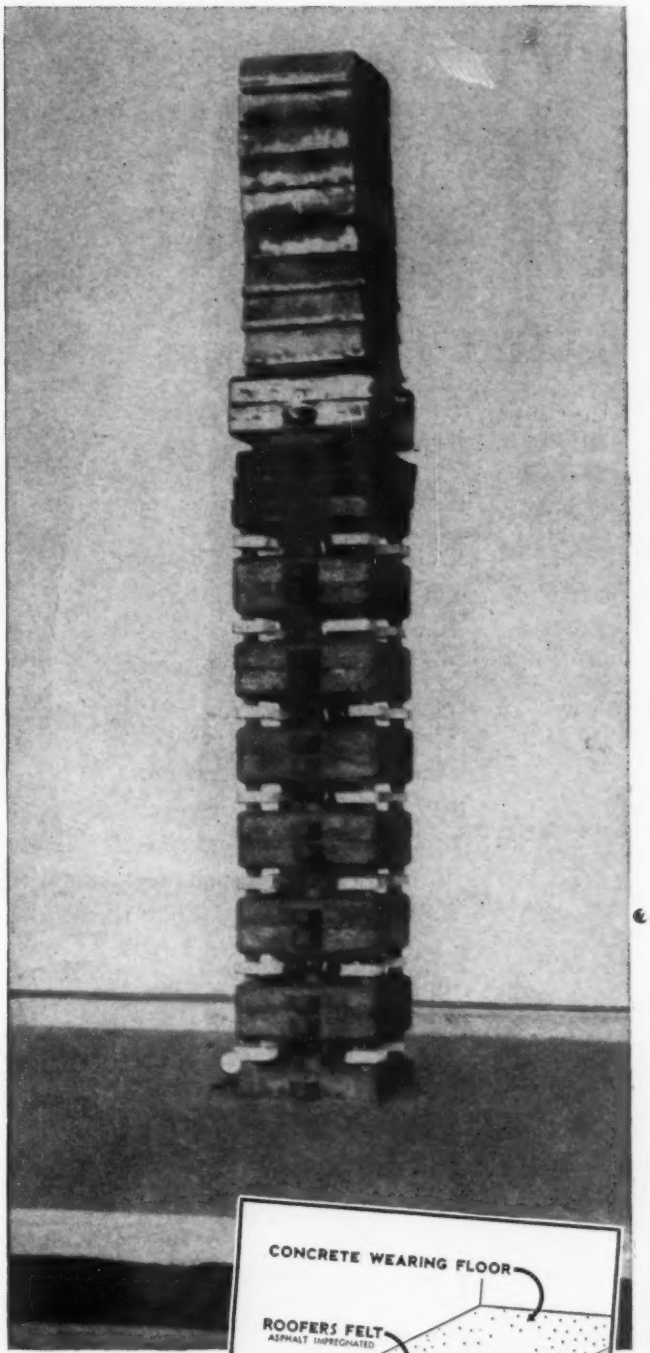
The new floor insulation!

Here's proof that

PC FOAMGLAS

passes the load test

On a concrete cover floor, 3 inches thick, laid over PC Foamglas blocks 4½ inches thick, 18 inches long and 12 inches wide, this 3000-pound load was piled on a base area of 13 x 13 inches in the center of an 8-foot x 10-foot slab. Subsequent examinations proved that the center of the slab had settled only .0013 inch and was undamaged. The Foamglas showed no evidence of crushing.

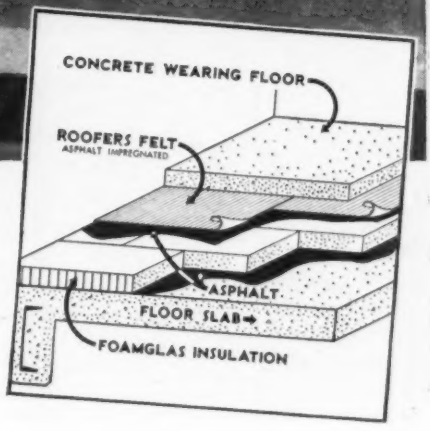


THIS cellular insulating material that is 9 parts air *hermetically sealed* in 1 part glass, PC Foamglas, should enjoy general acceptance among plant managers, because of its permanent insulating efficiency. In addition, its carrying capacity far exceeds normal floor loads, as proved by the test illustrated here.

Being glass, it is impervious to moisture, acid atmospheres, vapors and fumes—which cause deterioration in other materials. PC Foamglas does not pack, slip, swell, shrink, warp or rot. It is strong and rigid—vermin- and fire-proof.

In food and chemical plants, textile mills, breweries and bakeries—in core walls and on roofs as well as on floors—PC Foamglas will maintain desired temperature and humidity levels and prevent condensation—throughout the life of the buildings in which it is installed.

Our technical staff will be glad to consult with you about your individual insulating requirements. Write today and you will receive complete information about PC Foamglas without charge or the slightest obligation. Pittsburgh Plate Glass Company, 2133-4 Grant Bldg., Pittsburgh 19, Pa.



This detail drawing is taken from the engineering data sheet which gives you all the facts you want about PC Foamglas as floor-insulation.

PC FOAMGLAS

T. M. REG. U. S. PAT. OFF

PERMANENT INSULATION

9 parts air · 1 part glass

THE WETTER YOUR PLANT EQUIPMENT AND WALLS THE MORE YOU NEED
DAMP-TEX ENAMEL
PRESERVES AND BEAUTIFIES DINGY WET WALLS AND EQUIPMENT
Proved Fungus Resistant by FUNGUS TEST
Dark, dingy walls cut down efficiency Rusty, neglected equipment increases depreciation costs. Rot, bacteria and fungus play havoc generally. The Damp-Tex system was created for the plant where the presence of moisture, heat and other unusual conditions hinders proper surface maintenance. Over 4,000 plants have discovered its superiorities. Write for our trial offer.
Proved Lactic Acid Resistant by ACID TEST
FUNGUS
RUST
DINGE
DAMP-TEX SYSTEM ON PAINTING
KNOCKS OUT THE ENEMIES OF PLANT MAINTENANCE
STEELCOTE MFG. CO. • ST. LOUIS, MO.
Canadian Manufacturer—Standard Paint & Varnish Co., Windsor, Canada.

moted to the rank of captain. He is a graduate of Clemson College, and prior to the call to active duty, he was southern sales manager for Colloids, Inc.

Chas. F. H. Johnson, president of Botony Worsted Mills, Passaic, N. J., and colonel in the Army's Specialist Reserve, has been awarded the War Department's Legion of Merit for his services as special advisor to Major General J. J. Phillipson, Director of Army Emergency Relief. Col. Johnson developed and supervised citizens' committees in 12,000 communities which sponsored performances of shows and films for the benefit of the Army Emergency Relief.

Jess B. Tatum, who received a degree in textile engineering from North Carolina State College, Raleigh, N. C., has been promoted to first lieutenant at Philadelphia QM Depot, where he is athletic officer.

W. N. Delaney, formerly representative for A. E. Staley Mfg. Co., in Alabama, Tennessee and Mississippi, is now a lieutenant in the U. S. Navy.

Roland A. Gibson, public relations officer of the Philadelphia QM Depot, has been promoted to captain. Before he entered the service, he had been teaching industrial relations, personnel management, and economics in the extension service of the Pennsylvania State College, State College, Pa.

THOMAS F. PARKS, executive officer of the Procurement Division, Philadelphia Quartermaster Depot, who has been promoted to the rank of major. He is a graduate of North Carolina State College with the degree of Bachelor of Science in Textile Chemistry.

Obituary

Frederick Fries Bahnson, 68, president of Southern Steel Stamping Co., Winston-Salem, N. C., died at his home March 18 after a brief illness. He was acting as consulting engineer for The Bahnson Co. and had been for many years closely identified with the textile industry. His surviving brother, Agnew H. Bahnson, is president of Washington Mills, Fries, Va., and Mayodan, N. C.

John Shoffner, president and founder of the Standard Hosiery Mills, Burlington, N. C., died March 3.

Joe Charlesworth, 75, owner of Charlesworth Textile Co., Auburn, Mass., died at Worcester, Mass., Mar. 6.

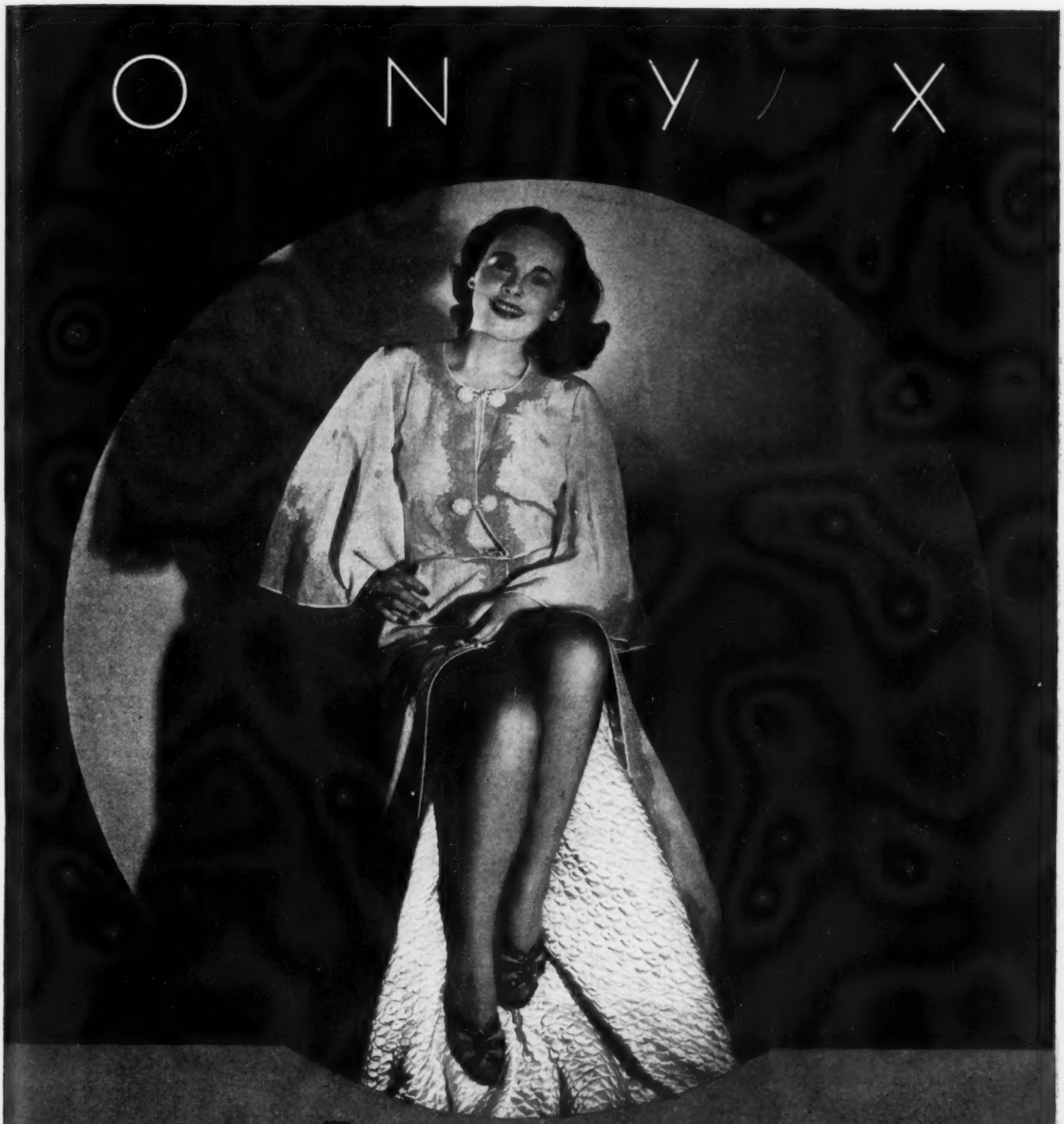
Dr. James Brodbeck, 61, president and chairman of the board of the Society of Chemical Industry in Basle ("CIBA"), Basle, Switzerland, died Feb. 20 at his country home in Gstaad, near Berne, Switzerland. Dr. Brodbeck joined the staff of Ciba in Basle in 1906, and was instrumental in organizing its branches throughout the world. His son, J. J. Brodbeck, is president of the Ciba Pharmaceutical Products Corp., Summit, N. J.

Charles M. Boyd, 88, a founder of Beacon Mfg. Co., then of New Bedford, Mass., and now of Swananoa, N. C., and of Oconee Mills, Westminster, S. C., died at Newton, Mass., Feb. 22. From 1916 to 1934 he was president of the Beacon company, and for some time was president of Jeremiah Williams & Co., Boston wool merchants who went out of business in 1930. Mr. Boyd retired in 1934, but retained the Beacon and Oconee directorships.

V. C. Burrowes, operator of Burrowes Mfg. Co., Hendersonville, N. C., died Feb. 18. A native of Bombay, India, he was connected with Chipman-Burrowes Hosiery Mill at Hendersonville for some time prior to establishing his own mill.

Miss Harriet I. Drake, 83, for several years president and manager of Middlesex Knitting Co., Camillus, N. Y., died recently in Syracuse, N. Y.

Samuel I. Bast, 73, underwear manufacturer, associated with his four brothers for 50 years as J. F. Bast & Sons, Inc.,



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NEWS ABOUT MEN

Schuylkill Haven, Pa., until his retirement, died Mar. 12.

Jacob N. Williams, 68, president and treasurer of Yorkshire Hosiery Co., Reading, Pa., died Mar. 10.

Ralph Quillan Rice, lieutenant in Army Air Forces, a student in textile engineering at Alabama Polytechnic Institute, Auburn, Ala., prior to entering the service in 1942, son of L. H. Rice, manager of Opelika Mills, Opelika, Ala., died in a plane crash near Berkshire, Eng., Nov. 30.

Wm. de Young Kay, 52, treasurer of Lane Cotton Mills, New Orleans, La., died Jan. 31. He had been with this company since 1942. He was a graduate of M.I.T.

Frank J. Bowers, Jr., 42, treasurer of the Scandinavia Belting Co., Charlotte, N. C., died Feb. 29. He was a native of England.

Grady J. Shepherd, 52, assistant secretary of Revolution Cotton Mills, Greensboro, N. C., and associated with these mills for 30 years, died Feb. 20.

H. Fletcher Brown, 77 vice president of E. I. du Pont de Nemours & Co. died Feb. 28 at Wilmington, Del. He had been a vice president of the du Pont company since 1916.

James N. Dundore, 73, secretary and treasurer of Liberty Dye Works, Reading, Pa., died Mar. 17.

Herbert F. Ryan, 58, purchasing agent and a director of Howe & French, Inc., Boston, Mass., chemical house, died in that city Feb. 29. He had been with the company over 40 years, specializing in the field of textile chemistry.

Owen W. White, 50, treasurer of Fabric Fire Hose Co., Sandy Hook, Conn., died Feb. 20. He was previously associated with U. S. Rubber Co. He joined the Fabric Fire Host Co. five years ago.

James Linney, 93, retired textile manufacturer, died Mar. 6 at Old Orchard, Me., after a short illness. Mr. Linney began his textile career in Fall River and also worked in mills in North Dighton, New Bedford and Waltham. He finally was employed as superintendent of spinning at the Hill Mills, Lewiston, Me., in 1889. He remained in this capacity for 32 years and retired in 1921.

W. W. ("Bill") Highberger, 37, second lieutenant in Chemical Warfare Service, U. S. Army, reported missing in action in the European theatre a year ago, is now listed as lost in action. He was for some years with Mathieson Alkali Works, New York. He has been posthumously awarded the Order of the Purple Heart.

George F. Johnston, of Mooresville Cotton Mills, New York office, and for many years an important figure in the Worth Street district, particularly over a long association with James F. White & Co., died late last month.

Cornelius H. Regan, 73, president of Sawyer, Regan Co., Dalton, Mass. until his retirement in 1938 died in New York, March 19.

Ferdinand Kaiser, 58, purchasing agent for Textile Machine Works, died Feb. 21 at Wyomissing, Pa. He was born in 1885 at Bonn, Germany, and came to America in 1909. He was associated with Textile Machine Works for over 26 years and was a member of the Board of Health of Wyomissing, Pa.

James Clayton, British engineer, who pioneered the development of rayon in the United States and who built several plants for the American Viscose Corp., died March 11 in Torquay, England. Courtalds, Ltd., sent Mr. Clayton, one of their engineers, to America to establish their rayon process in America.

Jesse Spencer Howell, 67, for 19 years general manager of Capel Rug Mills, Troy, N. C., died recently.

Robert Stirling, widely known in the field of water filtration and construction and a member of the engineering staff of W. J. Westaway Co. Ltd., Hamilton, Ont., for 23 years, died recently in Hamilton.

Owen Franklin Benton, 60, general superintendent of the Cowikee Mills, Eufaula, Ala., died recently.

I. Leander West, 65, superintendent of construction for Beaumont Mfg. Co., Spartanburg, S. C., died Feb. 5.

Jesse L. Starnes, 49, for 16 years master mechanic for the Slater Mfg. Co., Slater, S. C., died recently.

David Preston, 57, a superintendent at Ludlow Mfg. & Sales Co., Ludlow, Mass., died Feb. 21 at Mercy Hospital. Mr. Preston was a flax buyer and textile expert.

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The way your travelers look under a magnifying glass means a lot, and yet —who can give minute examination of every traveler? The answer is—Carter can, and does inspect *every* traveler—not once, but many times, throughout every operation. The net result of course is the kind of travelers you are looking for.

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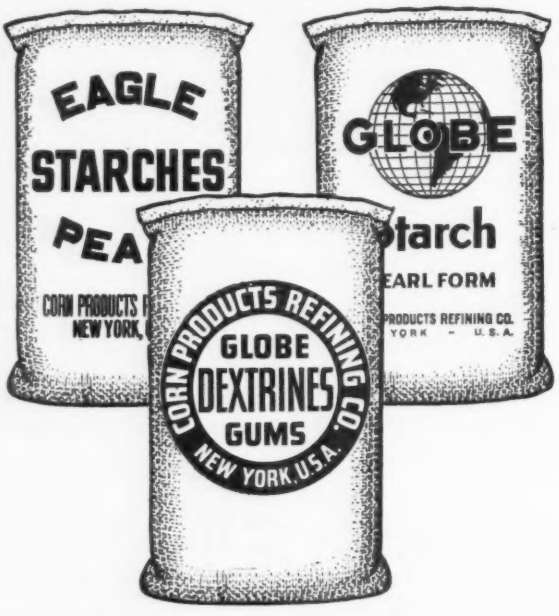

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Spartanburg, S. C. Birmingham, Ala. Boston, Mass.

NEWS ABOUT Mills

Cotton Mill News

Alice Mfg. Co., Easley, S. C., had more than 200 bales of cotton burned or damaged by fire recently. The mill warehouse, in which the cotton was stored, was only slightly damaged.

Camellia Mfg. Co., Greenville, Ala., J. C. Robinson, manager, which was completely destroyed by fire on Feb. 1, has been put back into operations in a larger building.

Courtenay Mfg. Co., Newry, S. C., has a $100,000 program under way in the village, which calls for the construction of several duplex houses, street improvements and the laying of sidewalks.

Drummondsville Cotton Co., Ltd., Drummondsville, Que., has asked bids on general contract for new multi-story addition, reported to cost close to $85,000 with equipment. Award will be made soon. T. Pringle & Son, Ltd., Montreal, Que., are architects and engineers.

Finetex Elastic Webbing Co., Union City, N. J., plans early call for bids for new three-story addition, 50x52 ft., reported to cost approximately $45,000, with equipment. Frank J. Ricker and Louis A. Axt, Hudson Blvd., West New York, N. J., are architects.

Industrial Winding Co., Inc., Brooklyn, N. Y., care of Stearns & Reinitz, New York, attorneys and representatives, recently chartered with capital of 100 shares of stock, no par value, plans operation of local mill for production of yarns, thread, etc.

Interwoven Narrow Fabrics, Inc., Long Island City, New York, care of Henry R. Eisenberg, 66-68 Fresh Pond Rd., Ridgewood, attorney and representative, has been chartered recently with capital of 100 shares of stock, no par value, to operate a local rayon and fabric mill.

K-C Mats, Inc., Dalton, Ga., manufacturer of cotton products, has leased a one-story mill, 50x110 ft., to be erected on local site, and will occupy for plant, replacing a former mill recently damaged by fire. It is proposed to double former capacity in new structure, on which work is now under way.

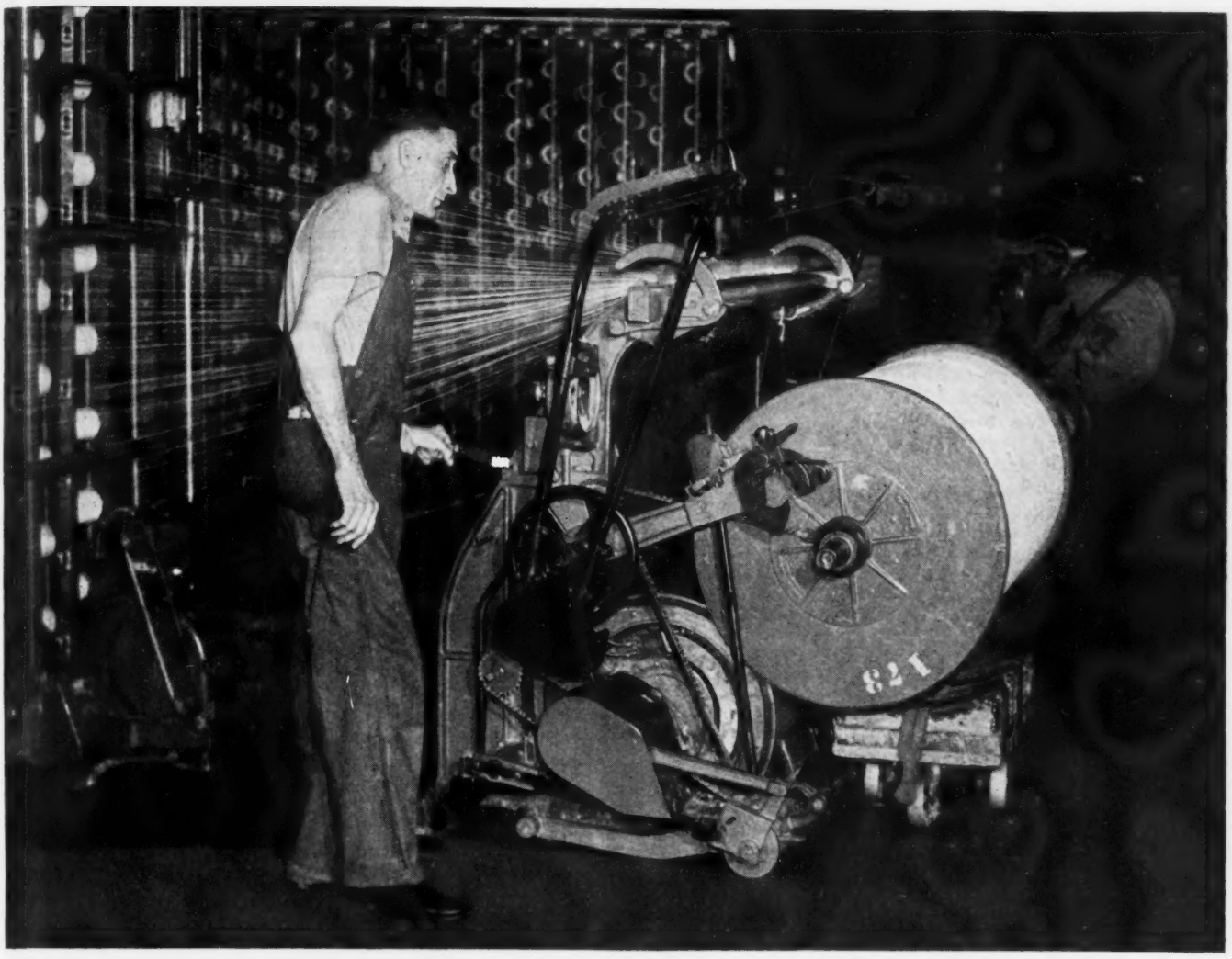
Medical Fabrics, Inc., 39 Division St., Newark, N. J., manufacturer of gauze and kindred products, has acquired a large multi-story mill at 10 Mill St., Paterson, N. J., heretofore owned by Paterson Reed & Harness Co., and will improve and occupy for new plant, expanding present capacity. Possession will be taken May 1.

Morgan Cotton Mills, Laurel Hill, N. C., have begun an extension, 100x125 ft., to the Richmond unit. The plant is running 100% on a war contract for tire fabrics. Officials stated that 14 housing units have been started to use for the third shift for both the Richmond and Springfield units of the company.

Oconee Textile Co., Whitehall, Ga., has superstructure in progress for new two-story addition, 25x100 ft., for which general contract recently was let to G. M. Caskey & Sons, Athens, Ga. Cost reported to $45,000, with equipment.

Quissett Mills, New Bedford, Mass., sold to Jacob Ziskind, Fall River, some time ago, is reported to have shut down part of its machinery and plans were afoot late in March to sell the machinery in blocks.

Patterson Mill, Lenoir, N. C., changed hands March 15, and became a unit of Yadkin Mills, Inc. Harry McIntyre, who has operated the Patterson Mill since 1916, was succeeded by George Stowe, who will head the operation for Gaston County and New York interests, its purchasers. The mill store was not included in the purchase and Mr. McIntyre will continue to operate it. George Stowe, the new president and treasurer, is also secretary and treasurer of the Climax Mill, Belmont, N. C.



Makes Easy Work of Beam Loading

ONE of the many features of the Barber-Colman Super-Speed Warper is the beam loader shown in the above picture. With this handy unit, one man can easily and quickly load and unload even the heaviest beams. The loader consists of a hand-crank-operated double chain hoist, with hooks to drop over both ends of the beam shaft. For unloading a full beam, as the picture shows, turning the crank pays out the chains and the beam rolls down over the driving drum until it rests on the beam truck. For loading, the beam is hooked and then drawn up over the driving drum until the shaft is seated in its bearings. Thus the operation of the loader is extremely simple and requires very little effort. Changing of beams is accomplished rapidly, the average time for the complete unloading and loading operation being about three minutes. This is only one of many ways in which Barber-Colman Super-Speed Warpers help to increase production and reduce effort, thus doing their part toward making more war goods faster.

For Example . . .

The following data is from a mill running heavily on war goods.

Count	30s
Ends on Beam	420
Yardage on Beam	30,000
Net Weight of Full Beam,	475 lbs.
Beams per Warper per 24 hr. Day	22

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Weathering effects of sunlight, rain, heavy dew and thermal shock reproduced in the laboratory at an accelerated rate that reduces years of actual weathering to a few days of testing in the —

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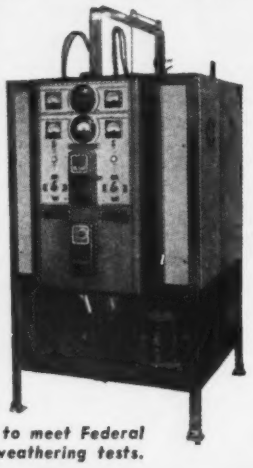
The Twin-Arc Weather-Ometer has full automatic control of light and water periods. The Atlas Cycle Timer unit can be set to reproduce any combination of weathering conditions. A direct reading thermal regulator, automatic shut-off switch and a running time meter is included on the control panel. After setting exposure cycle on the control panel the Weather-Ometer is safe to be left in continuous operation over night without attention except to replace carbons once in 24 hours.



The Atlas Weather-Ometer is required to meet Federal Specifications demanding accelerated weathering tests.

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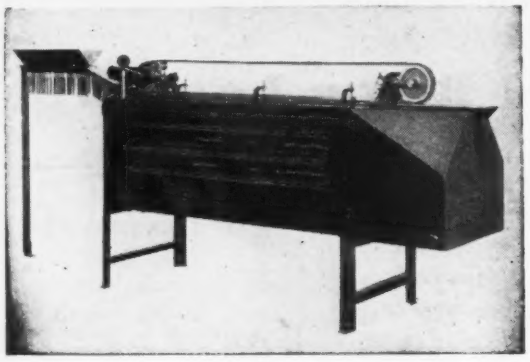
Originators and sole manufacturers for over a quarter of a century. . . Weather-Ometers, Launder-Ometers, Fade-Ometers are the accepted standard accelerated testing machines all over the world.



THE TYPE L
LOOM BOBBIN STRIPPER
for
RAYON YARNS

The Terrell Machine Co., *Inc.*
CHARLOTTE, N. C.

James F. Notman, Needham, Mass.....N. E. States
E. W. S. Jasper, Inc., Elizabeth, N. J., Penn., N. Y. and N. J.
W. J. Westaway Co., Ltd.., Hamilton and Montreal.....Canada
Geo. Thomas & Co., Manchester, Eng.....European Agent

and has connections with other mills. Wade Stowe has been named general manager, but no other personnel changes are now contemplated, it is understood.

Raybestos - Manhattan, Inc., has awarded contract to O. F. Burghart, Inc., Bridgeport, Conn., for a one-story addition, 25x120 ft., at the plant of its Raybestos Division, Stratford. The project is estimated to cost $10,000.

Red River Cotton Mills, Red River, S. C., operated for a number of years by York Wilson, formerly of Rock Hill, S. C., but idle for the last 15 years, has been purchased by Dan S. LaFar, of Rock Hill, and associates. The mills will be put back into operation, working exclusively on Government contracts for the present. It will be operated for the duration as unit No. 2 of the Harden Mfg. Co., with main offices at Gastonia, N. C. The main buildings at the mill are being repaired and put into working condition, and machinery is being installed, some of which is scheduled to be put into operation almost immediately. The mill will manufacture merino yarns for Government hosiery. It is planned to continue operation after the war.

Riverside & Dan River Cotton Mills, Danville, Va., has developed a pilot mill which will be a laboratory for post war goods which are to go into production when the war is over.

Samoset Cotton Mills Corp., Talladega, Ala., has been sold to Wehadkee Yarn Mills, Inc., West Point, Ga., for $380,000. Sale has been confirmed by referee in bankruptcy.

Wadesboro Yarn Co., Wadesboro, N. C., obtained a certificate of incorporation from the North Carolina Secretary of State Mar. 27 to engage in a general manufacturing business. Sheldon M. Roper, A. J. Owens, Jr., and M. M. Rudisell, all of Lincolnton, N. C., are the incorporators. The firm has authorized capital stock of 60 shares of no par value according to its certificate.

Wabasso Cotton Co., Ltd., Three Rivers, Que., has plans maturing for expansion and improvements in mill, including installation of additional equipment. Cost reported over $100,000, including the added machinery.

Wool Mill News

Atlanta Woolen Mills, Atlanta, Ga., has completed installation of dyeing machinery which was purchased from Morton Machine Works to replace a wornout unit.

William Butler Co., Providence, R. I., has postponed indefinitely the starting up of its Lone Star Wool Scouring Mill, San Marcos, Texas.

Chippewa Falls Woolen Mill Co., Chippewa Falls, Wis., has plans nearing completion for new one-story addition to mill, including improvements in present plant. Proposed to begin work soon. Klinger, Hubbard & Gohn, Eau Claire, Wis., are architects.

T. H. Clark Mfg. Co., Rowayton, Norwalk, Conn., manufacturer of rugs and carpets, is considering rebuilding of portion of three-story mill, recently damaged by fire, with loss reported close to $25,000, including equipment.

Thomas Kay Woolen Mill Co., Salem, Ore., plans immediate rebuilding of portion of mill recently damaged by fire, with loss reported close to $17,000, including equipment.

Monadnock Carpet Co., Milford, N. H., has been purchased by Edward I. Goldenberg, head of Vernon Rug Mills, New York. Small rugs and narrow carpeting are manufactured. Mr. Goldenberg also purchased an adjacent structure, which will be enlarged and joined to the Monadnock mill. Harry L. MacCready is in charge of the plant.

National Worsted Mills, Jamestown, N. Y., awarded general contract to Warren Construction Co., for construction of a 2-story fireproof addition to its plant in Falconer, N. Y., estimated to cost more than $40,000 with equipment.

Strathroy Woolen Mills, Strathroy, Ont., has plans maturing for new one-story addition, reported to cost approximately $55,000, with equipment. Erection is scheduled to be carried out this spring.

The Wanskuck Co., Providence, R. I., is constructing a new monitor roof on its plant in Wild Street. The work is being done over the old roof and provides extra space. Rowley Construction Co., Pawtucket, R. I., has the general contract.

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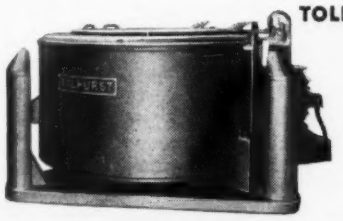

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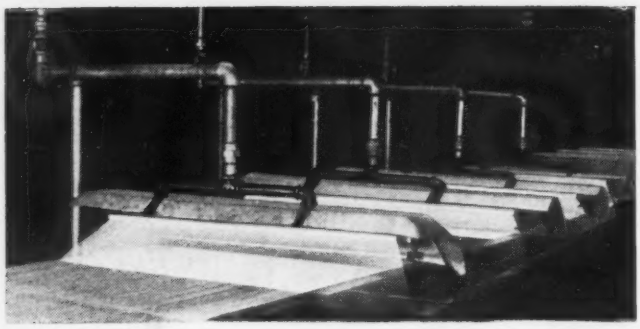

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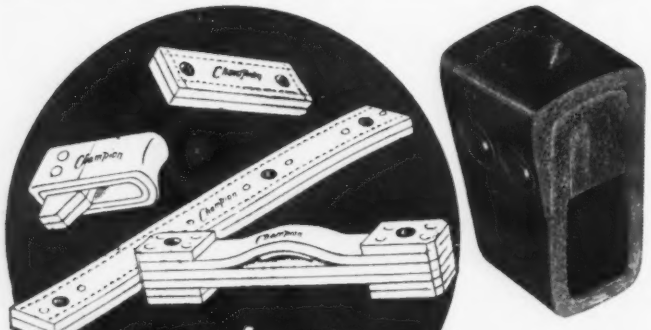

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Rayon & Silk Mills

American Enka Corp., Enka, N. C., has work under way on the construction of a new spinning, washing, drying, and shipping building as the initial step in its extensive tire yarn program. Plans call for the construction of several additional buildings, including a filter plant.

American Silk Spinning Co., Providence, R. I., has taken out a permit to make improvements in warehouse at 106 Whipple St.

American Viscose Corp., Wilmington, Del., has contracted with Government for expansion at three mills at total estimated cost of $7,000,000 for buildings and machinery for increased capacity for high-tenacity rayon yarns for tire cord manufacture. Of amount noted, $4,000,000 will be expended at mill at Lewistown, Pa.; $2,250,000 at plant at Parkersburg, W. Va.; and $750,000 at Marcus Hook, Pa., mill. Financing will be provided by Defense Plant Corp., Washington, D. C. Work is scheduled to begin at once.

Bobo Weaving Mills, Spartanburg, S. C., previously idle, had its application to manufacture rayon tire cord approved by Government officials, and the plant is expected to have an output of 4,500,000 lb. annually.

Courtaulds (Canada) Ltd., Cornwall, Ont., is planning a substantial addition to its plant. The program involves construction of new buildings, and installation of new and special equipment. The firm will expand its production greatly as well as establish facilities for manufacture of plastics.

E. I. du Pont de Nemours & Co., Wilmington, Del.—Cheap T.V.A. power appears to be a controlling factor in plans for a possible nylon plant location on a site near Chattanooga, Tenn., which was reported in these columns last month. It is said that options have been obtained on tracts of land on the North side of the Tennessee River, northeast of Chattanooga, below the T.V.A. Chickamauga dam power project, and engineering surveys will be made. Proximity to relatively cheap high grade coal, water and power are among the most important factors.

Industrial Rayon Corp., Cleveland, Ohio, has awarded general contract to George A. Rutherford Co., Cleveland, for three-story addition to mill, about 70x82 ft., to cost over $175,000 with equipment. This is part of expansion program of company previously noted. Wilbur Watson & Associates, Inc., Cleveland, are architects and engineers.

Raycord, Inc., Spartanburg, S. C., has been incorporated to operate with a listed capital of $120,000. Officers of the concern are V. M. Montgomery, president and treasurer, and Benjamin O. Johnson, secretary. Incorporators are listed as Robert Z. Cates and Johnson.

Knitting Mill News

S. Augstein & Co., 15-23 126th St., College Point, L. I., N. Y., manufacturers of knit goods, (previously reported), have leased former knitting mill at Cheraw, S. C., and will operate as branch mill for manufacture of uniforms for war nurses, under name of Edgemont Mfg. Co., Inc.

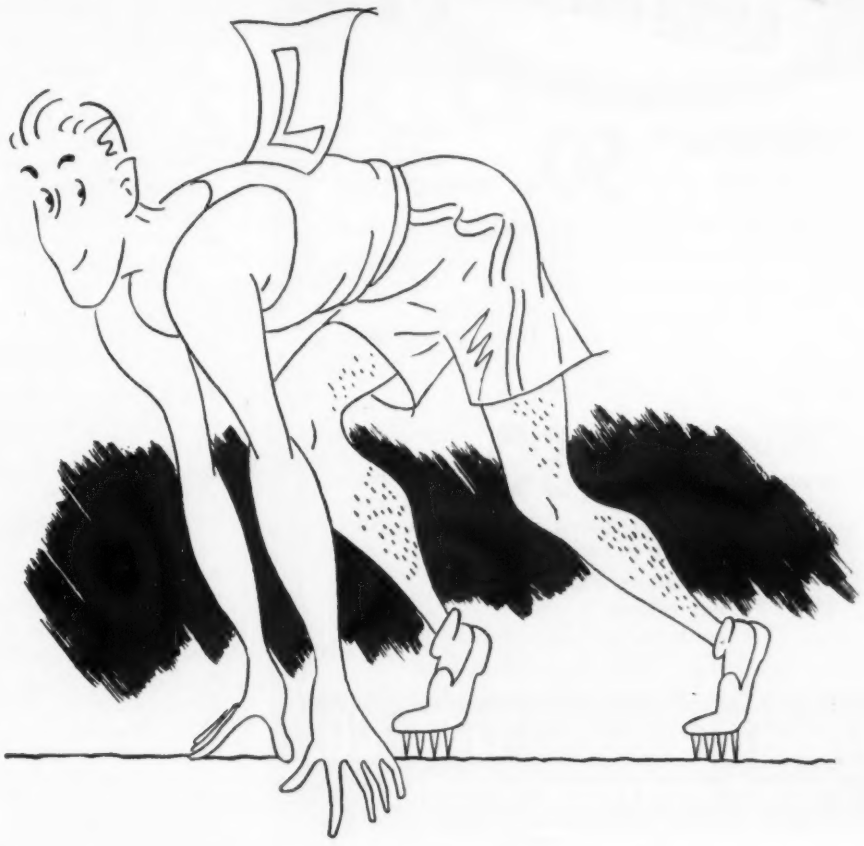
Bristol Knitting Mills, Inc., Bristol, Va., has leased to the owners and operators of Norwood Woolen Mills, Norwood, Mass., its spinning department. The operators are running 2,000 mule spindles for a scheduled output of 20,000 lb. each week. Norwood began operating on wool and rayon yarns last summer.

Spencer Mills Corp., Fort Plain, N. Y., has been formed, with Ernest Spencer in the office of president, and Philip Wick as treasurer, to make tricot knitted fabrics. This new firm has leased the facilities of the Montgomery Textile Co. Philip Wick Co., New York, will be selling agents for its products.

Wayne Knitting Mills, Fort Wayne, Ind., is reported to have paid $1,425,000 for the plant of Rodgers Hosiery Co., Athens, Ga., the purchase of which was reported last month.

Malone Knitting Co., Springfield, Mass., has lately increased its machinery installation at its plant located in Wolfeboro, N. H.

Dorset Knitting Mill, Inc., Brooklyn, N. Y., care of George M. Glassgold, New York, attorney and representative, has been organized with capital of 100 shares of stock, no par



WILL YOU BE READY FOR THE RACE?

When the gun is fired to start the postwar race for markets, will your knitting machines be ready for the demands which will be placed upon them? A way of insuring that they will be in top condition is to use Scott & Williams maintenance service, including:

1. A thorough survey of the condition of your machines by an experienced S & W service engineer.
2. A complete reconditioning of your equipment with S & W replacement parts.

This procedure will not only prolong the life of your machines and place you in a strong position at the end of the war, but will return immediate benefits in minimizing down time and wasted yarns and reducing rejects. Phone, wire or write for an appointment,

Here at Scott & Williams we are planning for tomorrow in terms of knitting machines you will need to meet after-Victory hosiery demands. Why not come in and "talk things over"?

BUY WAR BONDS FOR VICTORY

"THIS IS THE SCOTT & WILLIAMS MACHINE AGE"

ESTABLISHED 1865

SCOTT & WILLIAMS

INCORPORATED

EMPIRE STATE BUILDING NEW YORK 1, N. Y.

2 STANDBYS FOR RAYON PROCESSING

V VIRGINIA

"VIRGINIA" (LIQUID) SO_2 THE IDEAL ANTICHLOR

A "natural" for rayon processing because low concentrations are highly effective.

★ removes active chlorine
★ neutralizes residual alkalinity
★ constant make-up by continuous flow

Shipped in steel cylinders containing 150 lb. net weight.

"VIRGINIA" (MONOHYDRATE) $ZnSO_4$ the high Zn content Zinc Sulphate prepared specifically to meet the purity standards of rayon processing.

— crystalline, free-flowing
— non-caking
— easily and quickly soluble

Packed in 100 lb. bags; 425 lb. bbls.

VIRGINIA SMELTING CO.
WEST NORFOLK, VIRGINIA

PERSIMMON SHUTTLES

A tested, precision product of the Shuttle People, with a proven record of satisfactory service on many fabrics in different mills.

FACTORY — Millbury, Mass. SO. OFFICE —W. F. Daboll, E. V. Wilson, 810 Woodside Bldg., Greenville, S. C. NORTHERN REPRESENTATIVE — G. C. Burbank, 32 Beaconsfield Rd., Worcester 2, Mass.

WATSON-WILLIAMS

★ ★

J. E. SIRRINE & CO.
GREENVILLE • SOUTH CAROLINA

S VIRGINIA

Engineers for more than 40 years

TEXTILE MILLS • CHEMICAL PROCESS PLANTS
PULP & PAPER MILLS • WASTE DISPOSAL
STEAM POWER PLANTS • STEAM UTILIZATION
WATER • APPRAISALS • PLANS • REPORTS

value, to operate a local mill for production of outerwear.

Knit-Sox Finishing Plant, Hickory, N. C., suffered damage by fire of undetermined origin, strating in the boiler room and spreading to the finishing room. It damaged 20,000 to 30,000 dozen socks in the gray.

Malone Knitting Co., Springfield, Mass., has been expanding branch mill at Wolfeboro, N. H., and will triple former capacity at plant.

Rosebud Knitwear Co., Inc., New York, N. Y., care of I. L. Nitzberg, New York attorney and representative, has been incorporated with capital of 100 shares of stock, no par value, to operate local mill for manufacturer of outerwear.

Royalton Knitting Co., Reading, Pa., hosiery manufacturers, have just purchased the former Voelker factory building at Penn Avenue and River Road, West Reading, Pa., and will renovate the structure and occupy as a knitting mill. Property is three story, of brick construction and includes a large vacant lot. H. Edward Phillipson is manager of the company.

Southern Knitwear Mills, Inc., 724 North Brevard St., Charlotte, N. C., is a newly established plant, which has been put into operation on infants' wool knit garments. Fred Stein is president and Eric Eiseman, secretary and treasurer of the company. This is said to be the first mill established in the South for the purpose of producing infants wool knit wear.

West Boylston Knitting Mill, Easthampton, Mass., has awarded contract for construction of a railroad siding to speed up shipping and receiving facilities. The Ward-Crane Service, Glastonbury, Conn., has the general contract.

H. L. Whiting Knitting Co., Los Angeles, Calif., has filed notice of organization to operate company of same name, with mill at 1375 West Jefferson Blvd. H. L. Whiting is head.

Wine-Port Knitting Mills, New York have been established at 410 East 93rd St. by John I. Weinstein and Samuel Rappaport. Plant is equipped with Tompkins machines, and does contract work for the trade on fleeces and jersey cloths.

York Knitting Mills, Ltd., Toronto, Ont., has started operation of its underwear and hosiery machinery in premises leased at Richmond, Que.

Processing Plant News

Plastiglazed Fabrics, Inc., Brooklyn, N. Y., care of Edward A. Lipton, New York, attorney and representative, recently chartered with capital of 200 shares of stock, no par value, plans operation of local textile processing mill.

United States Finishing Co., Norwich, Conn., plans modernization and expansion in boiler house at mill, with installation of additional equipment. Westcott & Mapes, Inc., New Haven, Conn., are consulting engineers.

Miscellaneous Mill News

Atlanta, Ga.—Board of Trustees, Georgia School of Technology, Atlanta, is planning expansion in textile school as a postwar project. This will be part of a general postwar development program at institution, estimated to cost approximately $1,230,000.

Linen Thread Co., Inc., New York, N. Y., has acquired mill of West End Thread Corp., Millbury, Mass., and will operate as a branch mill in future. Improvements are planned. Property recently was acquired by Jacob Ziskind, Fall River, Mass., and previously was a subsidiary of Quissett Mill, New Bedford, Mass.

Robert McBratney & Co., Stunzi Sons and **Barret Textile Corp.,** New York, have announced that they have placed on the market linens made entirely from American grown flax and completely developed in this country, from the processing of the flax itself on through to the finished fabric.

Miami, Fla.—Russell N. Edwards, 2385 N. W. 3rd St., Miami, is at head of project to construct and operate a new textile fiber mill in vicinity of Lake Okeechobee, for production of raw material. Work is scheduled to begin at early date.

Sterlite Fiber Products, Inc., South Coventry, Conn., manufacturers of textile fiber products, sustained a fire loss at mill recently, totaling about $75,000, with equipment. Plans for rebuilding are under consideration.

in WAR or PEACE

ARKANSAS PRODUCTS *Serve Dependably*

FUNGICIDE: A mildew proofer made in various types to meet all government specifications.

ARKO FIRE RETARDENT: For flame-proofing uniform cloth, felt and all types of rayon and cotton fabrics including theatrical drapes.

***AQUAROL:** A water repellent for uniforms, overcoatings and other military fabrics; also all civilian garment cloth.

***PARAMINE:** A cation active softener for processing cotton and rayon cloth to obtain a soft, smooth, pleasing finish.

***ALGEPON P.:** A retarding agent for vat and sulphur dyeing to prevent premature oxidation of the dye-stuff or in other processes when necessary to retard exhaustion to obtain a uniform shade.

***PARAPON S. A.:** A highly efficient leveller and softener used in dyeing and finishing all types of viscose and acetate rayon. Excellent for processing tricot cloth.

ARKOLA G.: For finishing rayons to impart a full, better feeling hand and additional weight. An excellent substitute for glycerine for printing and finishing.

***CULOFIX:** Used as an after treatment in last rinse to prevent bleeding of direct dyed cotton or rayon in water.

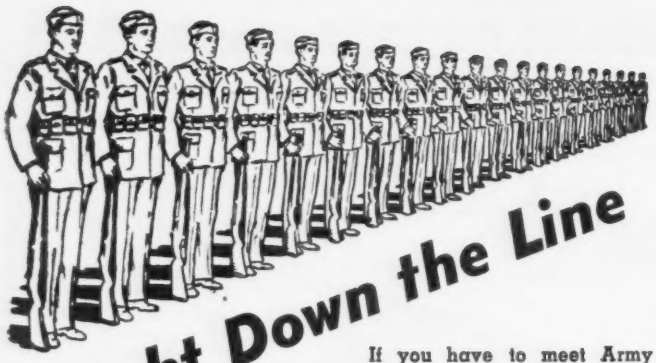
***DIAZONOL A. C.:** For boiling out cotton cloth in pressure or open kiers to produce greater absorbency and cleaner material. Excellent for preboiling knitted cloth in preparation for chlorine bleach. Also used with good results for boiling out cotton or rayon cloth in the jig.

And a Complete Line of Oils, Chemicals, Softeners and Finishes
For Wet Processing All Textile Fibres

*Reg. U.S. Pat. Off.

ARKANSAS CO. INC., NEWARK, N. J.

Established 40 years



Right Down the Line

If you have to meet Army Quartermaster Department specifications your fabrics will show a big improvement right down the line if you use

DRUMMOND SOAP

It's a high-body product of low alkali content . . . No filler of any kind . . . A high binding quality that results in minimum flocking . . . Saves on steam and water because it rinses easily and completely . . . Better fulling and scouring . . . Leaves fabric perfectly clean with softest feel, better hand, brighter colors and whiter whites . . . Want to try it? Just write us today for a free working sample and test Drummond Soap on your own goods.

If you can't shoot Japs shoot the works
—BUY MORE BONDS

Standard Soap co. of camden

205 South 2nd St
Camden, N. J.

Woonsocket, R. I.
G. TANGUAY
241 HARRIS AVE.

***SCOTT TESTERS-Recognized Standard**

Scott Tester results are in terms familiar to technicians everywhere—in fact, numerous standard tests were derived from our machines. 60 models from single hair to 1 ton for tensile, hysteresis, flexing, burst, crepeage, twist, etc., etc.

SCOTT TESTERS
*Registered Trademark

HENRY L. SCOTT CO. 95 Blackstone St. Providence, R. I.

"YOU CAN COUNT ON WAK COUNTERS"

They are

RUGGED

ACCURATE

DEPENDABLE

We build single, double and triple pick counters; yardage, rotary, ratchet and special counters.

Write — Phone — Wire

WAK INDUSTRIES CHARLOTTE, N. C.

NEWS ABOUT Suppliers

Aridye Corp., Fair Lawn, N. J., is establishing a new department devoted to technical publicity and market research, to be headed by Winn W. Chase, who is resigning as executive editor of TEXTILE WORLD. Organized in 1938, as a subsidiary of Interchemical Corp., the company introduced a new process for printing textiles with pigmented colors. In 1942 it announced the development of a pigment-dyeing process which had a number of peacetime applications. It is also being employed in the production of camouflage strips, mosquito netting, etc. Later Aridye became selling agent for Ceglin, an alkali-soluble cellulose ether, produced by Sylvania Industrial Corp. In December, 1943, the company purchased the business of Phoenix Color & Chemical Co., Paterson, N. J., manufacturers of dyestuffs and intermediates, and is operating the plant as the Phoenix Color Division of Aridye Corp.

Scott & Williams, Inc., Laconia, N. H., knitting machine manufacturers, now engaged in war production, honored 350 persons who had purchased war bonds valued at $1,000 or more, some of them representing groups or organizations, at a dinner at The Tavern in Laconia, on Feb. 22. Mayor Robinson W. Smith was toastmaster and speakers included John J. Sullivan, Assistant Secretary of the Treasury; Gov. Robert O. Blood, and Ralph E. Thompson, president of Scott & Williams, Inc.

Steel Heddle Mfg. Co., Philadelphia, has added Emil V. Wilson to its field staff. Mr. Wilson, who was born and raised in the textile district of the South, will operate as field engineer out of the Atlanta office.

Charles Bond Co., Philadelphia, has opened an office at 99½ Walton Street, N. W., Atlanta 3, Ga. In charge is John C. Turner, who has for many years represented the firm in that section.

Rudel Machinery Co. Ltd., 614 St. James St. W., Montreal, Canada, has recently established a textile machinery division. The firm, which formerly specialized in heavy industrial machinery, will now represent a number of United States textile machinery firms including Davis & Furber Ma-

WORKING TO EASE PICKER STICK SITUATION

THE PICKER STICK ASSOCIATION, meeting at Greensboro, N. C., recently elected J. C. Tatum, Reidsville, N. C., as president for the coming year and adopted a resolution authorizing conferences with Government officials in an effort to avert an acute picker-stick blank shortage.

P. L. Yount, Conover, N. C., was elected vice president of the association; W. J. Young, Memphis, Tenn., was named secretary and treasurer; W. Irving Bullard, Charlotte, N. C., was elected chairman; C. L. Huff, Greenville, S. C., vice chairman; and Harry L. Tatem, of Eastford, Conn., D. L. Norris, of Greenville, S. C., L. O. Erwin of Huntsville, Ala., and Joseph J. Cox of High Point, N. C., directors.

Messrs. Yount and Bullard were authorized to go to Washington to discuss with the WPB textile machinery and lumber branch officials the necessary measures for correcting shortages and lowered quality in picker-stick blanks, and for easing regulations which are hampering the industry.

The association predicted an acute shortage of raw material and urged textile manufacturers to be "as tolerant as possible during the impending emergency over which the manufacturers have no control." It reported that picker-stick blanks, now in drying-warehouses of the 15 firms manufacturing them, are only one-third of the normal stock, and that there is an acute shortage of manpower all the way down from logging operations to the finishing plants.

Surprising

How DEVOPAKE hides and covers *any* surface *in just one coat!*

Cheers for DEVOPAKE! Its hiding and covering power over *any* interior wall surface *in just one coat* is more than *surprising* — say maintenance men in every industry! You'll find it saves time, money, man hours — gives real protection because of its oil-base. DEVOPAKE — the one coat flat — is a self-sealing primer and finish coat in one, will stand repeated washdowns, really *lasts!*

For complete satisfaction . . . for money saved . . . specify DEVOPAKE. Be patient with your Devoe Agent if he is temporarily out of popular DEVOPAKE. War needs come first.

DEVOE PAINT

The 190th year of the Oldest Paint Maker in America

FIRST AVENUE AT 44th STREET, NEW YORK 17, N.Y.

The Fleet Line

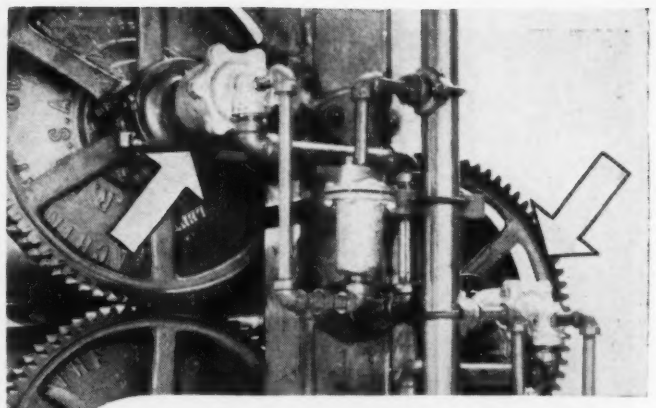
OF FINISHING EQUIPMENT

Fulling Mills • Washers — Batch and Continuous • Derby Dry Cleaners • Piece Dye Kettles • Stock Dye Kettles • Carbonizing Ranges • Dye Becks • Rope Soapers • Soaping Machines • Pusher Mills • Soap Distributing Systems • Top Dyeing Machines • Progressive Jigs • Yarn Steamers

RIGGS AND LOMBARD

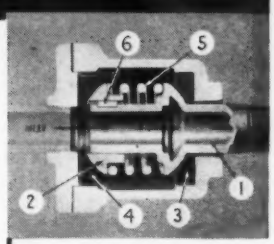
INCORPORATED

Foot of Suffolk Street · · · Lowell, Mass.



HELP for Your "Help Wanted" Problem

. . . Man-Hours Go Farther with JOHNSON JOINTS



● Compared with the Johnson Rotary Pressure Joint, the old stuffing box type of steam fit can be literally a waste of precious time. All the oiling, the repacking, the adjusting, the replacement of parts worn too rapidly by misalignment — all this constant servicing is a thing of the past with Johnson Joints.

For hundreds of users this has made a substantial number of man hours available for other tasks. At the same time the Johnson Joint has stepped up production — by eliminating many causes of machinery shut down, and by providing a simpler way to install modern, more efficient methods of syphon roll drainage.

In normal times, the savings in maintenance cost alone were ample reason for the rapid acceptance that greeted the Johnson Joint. Today, in terms of man hours and plant production, these benefits are of far greater importance. Decide now to investigate Johnson Rotary Pressure Joints for your plant.

WRITE FOR FULL DETAILS

COMPLETELY PACKLESS. Rotating member consists of nipple (1) and sliding collar (2), keyed together (6). Seal is accomplished by carbon graphite ring (3), forced by pressure tightly against nipple.

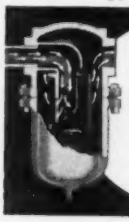
SELF-OILING. Seal ring and bearing ring (4) are of long-lived carbon graphite—require no lubrication.

SELF-ADJUSTING. Spring (5) is for initial seating only. Joint in operation is pressure sealed; the higher the pressure, the tighter the seal.

SELF-ALIGNING. Ball and socket joints between rotating member and rings provide angular flexibility. Space between nipple and housing allows lateral movement.

The Johnson Corporation

814 WOOD STREET THREE RIVERS, MICH.



MAKE YOUR COMPRESSED AIR COME CLEAN with the Johnson Separator. Employs the two best principles of separation—expansion and change of direction; removes 99% plus of trouble-causing water, dirt and oil from compressed air. Simple design and construction insures long life. Also available for service on steam lines.

Write for Bulletin on Johnson Separation Devices

RED-RAY RADIANT HEAT BURNERS SPEED UP DRYING OF THICK FELTED GOODS

A single 119 inch Red-Ray Burner applied to cans for drying inch thick felted material. Drying speed increased 60 per cent.

WRITE FOR COMPLETE DETAILS.

RED-RAY MANUFACTURING COMPANY

455 W. 45th STREET — NEW YORK, N. Y.

Southern Representatives:

CAROLINA SPECIALTY COMPANY CHARLOTTE, N. C.

INDUSTRIAL ENGINEERS

Specializing in

TEXTILES FOR MORE THAN A QUARTER OF A CENTURY

RALPH E. LOPER CO.

COST SYSTEMS WORK LOAD STUDIES

PAY ROLL CONTROLS

COST REDUCTION SURVEYS SPECIAL REPORTS

GREENVILLE, S.C. FALL RIVER, MASS.

***Simplified* DESIGN**
***Flexible* POWER**
***Better* EVAPORATION**
***More sensitive* CONTROL**

SOUTHWORTH HUMIDIFIER

Experienced textile men who know the merits of previous models of Southworth Humidifiers have found improvements in Model D that make it even more reliable and efficient.

Extreme sensitivity of control, and an "airplane propeller" type fan for greater evaporation, are two outstanding features.

NOTE

This advertisement is to remind you to include Southworth Humidifiers in your after-the-war plans. Frankly, we are 100% on war work and cannot make humidifiers at the present time.

THE SOUTHWORTH MACHINE CO.
PORTLAND MAINE

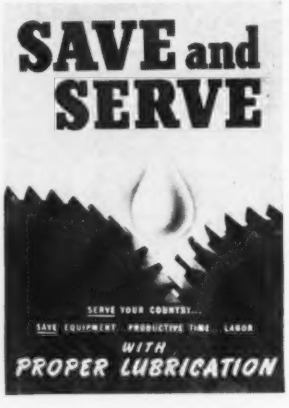
chine Co., North Andover, Mass.; James Hunter Machine Co., North Adams; H. & B. American Machine Co., Pawtucket, R. I.; Parks & Woolson Machinery Co., Springfield, Vt.; Gaston County Dyeing Machinery Co., Stanley, N. C. This new textile machinery division of the Rudel firm will be managed by J. E. O'Donnell.

American Wire Fabrics Corp., New York, has elected B. L. Weaver as a vice president. The company is a subsidiary of the Wickwire Spencer Steel Co. Mr. Weaver will have direct charge of all operations at the Mt. Wolf Plant, Mt. Wolf, Pa. He will make his headquarters there.

New England Bobbin & Shuttle Co., Nashua, N. H., has appointed Henry H. Hersey, Greenville, S. C., as its representative for South Carolina.

Comprehensive Fabrics, Inc., New York, which merchandizes Koroseal products of The B. F. Goodrich Co., has appointed Harold S. Birkby as vice president in charge of marketing. Mr. Birkby resigned as sales manager of Pacific Mills in order to accept the new post. He had been previously manager of the technical sales department of Cannon Mills, and vice-president and director of Hodges Carpet Co.

Albert Ramond & Associates, Inc., New York, have succeeded The Bedeaux Co., Inc.



SUN OIL CO., Philadelphia, is supporting its "Save and Serve" campaign by a complete series of printed pieces including a lubrication booklet, wall chart, plant poster, industry folders, technical bulletins and maintenance memos. Proper lubrication saves labor, equipment and time. Above is poster dramatizing these points.

CHARLES E. CIMIOTTI, who has been appointed southern representative of Beach Soap Co., Lawrence, Mass. Mr. Cimiotti will service the company's complete line of soaps and will work with the company's established distributors throughout the South.

The organization is managed by the same group of executives which has directed the affairs of the company since 1937 and the field engineering staffs also remain intact.

Witco Chemical Co., New York, is the new name under which the organization formerly known as Wishnick-Tumpeer, Inc., now operates. The change does not affect the corporate structure, management, personnel or policies of the company.

Canadian Aniline & Extract Co. Ltd., Hamilton, Ont., recently completed an addition to its plant at 250 Eglin St., Hamilton, Ont. The addition will house the drying and powdering equipment for processing the various products of the firm known as the Kloranol series. Construction is under way on the first complete unit for manufacture of oxalic acid which should be in production sometime in April.

Stauffer Chemical Co. recently purchased 18 acres of land 19 miles north of Rileyville, Va., close to the Shenandoah River, on which it plans to erect a new branch mill.

Bound Brook Oil-Less Bearing Co., Bound Brook, N. J., lately received its third award for high achievement in the production of war material from the War Department.

Eshelman & Potter, Charlotte, N. C., and Birmingham, Ala., were recently appointed representatives of Edward Valve & Mfg. Co., Inc., for the

Order Your

CUT GEARS
CUT RACKS
CUT SPROCKETS
from
"Industrial"

We are gear and sprocket cutting specialists . . . that's why we can serve you better. One product—plus undivided responsibility—equals utmost satisfaction. Send us your next order and note the difference.

Spur, Bevel, Mitre, Worm, Spiral, Internal, Helical Gears—any quantity—any material

GENERATED TOOTH RACKS
SPROCKETS FOR ROLLER OR SILENT CHAIN
PRECISION SURFACE GRINDING

INDUSTRIAL GEAR MFG. CO.
4547 VAN BUREN STREET CHICAGO 24, ILLINOIS

Points to remember
Buy War Bonds and

NEW BEDFORD, MASS.
ALLEN
COMPANY.

CONSERVE YOUR BEAMS!
Avoid BUMPING and BANGING

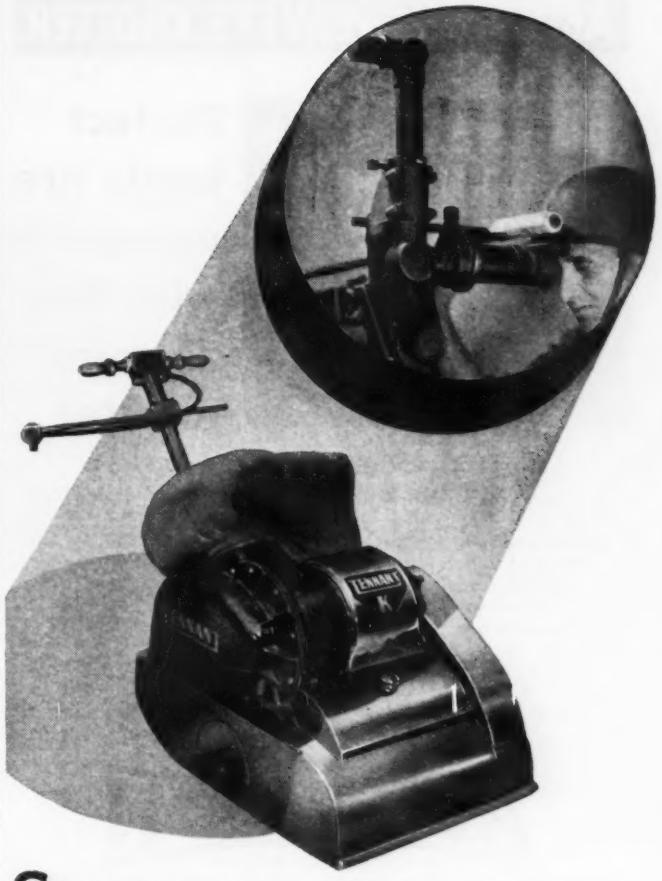
ALLEN COMPANY, 136 River Road
New Bedford, Mass.—So. Rep.
Mr. L. E. Wooten, Fort Mill, So. Car.

3

ALDON SPINNING MILLS
ALFRED W. CAVEDON

Spinners of Fine Woolen
Merino & Specialty Yarns

SELL DIRECT TALCOTTVILLE, CONN.



Soon . . .

the manufacture of Tennant Floor Machines will no longer be eclipsed by the production of Gun Sights

TENNANT FLOOR MACHINES

Perform an important War Service in maintaining SAFE, Clean Floors in war factories, mills and offices throughout the nation. Clean floors help to reduce accidents, speed production and facilitate the movement of materials through the plant.

The service of Tennant field representatives is available without cost. If you have floor cleaning and maintenance problems *now* or want to make *plans for the future,* write or wire today.

Leaders in the textile field use the TENNANT SYSTEM to obtain smooth floors that are easily kept free of lint and oil spillage.

G. H. TENNANT CO. Established 1870
2586 North 2nd St. Minneapolis, Minn.
Pioneers in modern floor maintenance

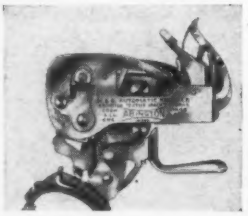
TENNANT SYSTEM OF INDUSTRIAL FLOOR MAINTENANCE

ABINGTON WEAVER'S KNOTTER

Perfect knots are automatic with this "4-point" Knotter

THIS UNMATCHED KNOTTER OFFERS:

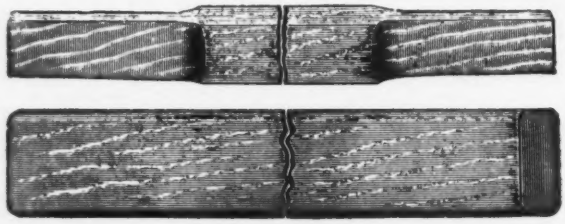
1 — Automatic scissor clipping of tails.
2 — A weaver's knot; flat, compact, positively non-slip.
3 — Tails any desired length from 5/16" down to minus 1/16".
4 — Dependable uniformity: a. both tails always equal in length; b. all knots uniform as to size of knot and length of tails.



REQUEST KNOTTER CATALOG

ABINGTON

ABINGTON TEXTILE MCHY. WKS., ABINGTON, MASS.
Vacuum Card Strippers – Yarn Dyeing Systems – Weaver's Knotters
OFFICES AT BOSTON, MASS. • CHARLOTTE, N. C.



A
DYE STICKS

Since 1900 we have made high quality true-form oven-seasoned dye sticks for all standard machines. We can fill your needs today to meet any requirement. Write

FRANK BAILEY Cedar Brook, N. J.

NOVELTY-YARNS
For
WEAVERS-KNITTERS
MONTGOMERY
WINDSOR LOCKS, CONN.
Designers and Spinners of Novelty Yarns

NEWS ABOUT SUPPLIERS

States of North and South Carolina, Georgia, Florida, Alabama and East Tennessee. James Potter is in charge of Charlotte district, and Joseph Eshelman is manager of the Birmingham district.

The Carborundum Co., Niagara Falls, N. Y., has appointed Charles W. Sprenger as district manager for the metropolitan New York district. Mr. Sprenger succeeds the late John Storm. His headquarters will be at 601 West 26th Street. Joseph C. Steele has been named district sales office manager at New York.

Jenkins Bros., Bridgeport, Conn., March 4, received an additional star for its "M" and "E" flags. The new flags represent the third award by the United States Maritime Commission, and the fourth award by the Army and Navy for excellence in production of valves for cargo and fighting ships.

HAROLD S. BIRKBY, who has charge of marketing of Comprehensive Fabrics, Inc., agents for Koroseal products.

T. C. KNUDSEN, who has been named manager and chief engineer of the new Texrope Department established by Allis-Chalmers Mfg. Co., Milwaukee, Wis., as part of a reorganization move. Since Allis-Chalmers developed the Texrope line in 1925, the multiple V-belt power transmission section had been a part of the Milling Machinery Department. Mr. Knudsen has been closely associated with the Texrope drive from its inception.

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. —Frank R. Benedict, 37-year-

THE PFAUDLER CO., Rochester, N. Y., was recently awarded the Army-Navy "E" pennant for excellence in production. Above are shown the principals at the presentation ceremonies. (Left to right) Edward G. Miner, chairman of the board of The Pfaudler Co.; Raymond Napierala, employee of the company for many years; and Brig. Gen. Ray L. Avery. The Elyria plant of the same company had previously received the "E" Award.

NINETY YEARS AGO

On February 8, 1854, this firm was established. Its history and growth have kept pace with the development of American Industry.

Time serves to give greater maturity to judgment, better proof to sound opinion, broader usefulness to accumulated resources.

Having completed our ninetieth year we look forward with confidence to the future of free enterprise of Capital and Credit which is the basis of all factoring and financing.

James Talcott, Inc.

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225 Fourth Avenue New York 3, N. Y.

Southern Correspondent, CLARENCE KNOWLES, 423 Citizens & South. Nat. Bank Bldg., Atlanta 3, Ga.

NEW MODEL • HIGHEST ACCURACY
CHRONOMETRIC
TACHOMETER

Readability to 1 RPM per division. Guaranteed accuracy well within ½ of 1%. Indicates RPM directly on the dial without any calculations over a fixed period of 6 seconds. Negligible torque. Two models with ranges 0-1000 RPM or 0-10,000 RPM, each suitable for double rated range.

Write for Bulletin No. 715

HERMAN H. STICHT CO. INC.
27 PARK PLACE NEW YORK, N. Y.

THEY'RE ALL COMPOUNDED IN

Finnell's Own Mill!

. . . affording a *single* and thoroughly dependable source of supply for all the types of powders listed below:

Finola Scouring Powder
For Washroom Floors, Basins, Bowls, and for Heavy Duty Scrubbing

Century Scouring Powder
A Mild Abrasive Cleanser

Solar Soap Powder
Vegetable Oil Base

Rubber Cleaner
Endorsed by Rubber Flooring Manufacturers Association

Also

Fino-Sorb
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Asesco Solvent Cleanser
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Han-Kleen Hand Soap
Vegetable Base

Han-Kleen Hand Soap
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Crystal Cleanser
For Dishwashing

Killum
An Insecticide

For literature or consultation, phone or write nearest *Finnell* branch or Finnell System, Inc., 1904 East Street, Elkhart, Indiana.

FINNELL SYSTEM, INC.
Pioneers and Specialists in
FLOOR-MAINTENANCE EQUIPMENT AND SUPPLIES
BRANCHES IN ALL PRINCIPAL CITIES

Write today!

This interesting folder describes the working ranges of twenty-seven types of slitters and roll-winders for use in the fabric converting and rubber industries, for cutting into strip and winding into rolls. Write for your free copy today.

CAMERON MACHINE COMPANY, 61 Poplar Street, Brooklyn 2, New York
MIDWEST OFFICE: Harris Trust Building, 111 West Monroe Street, Chicago 3

WHITMAN YARNS

WORSTED · COTTON · SPUN RAYON

WHITMAN SERVICE
1852-1944

During 92 years The William Whitman Company, Inc., and its predecessors have served the interests of important mills and users of yarns, seeking to establish for its customers a steady flow of dependable, quality yarns.

ARLINGTON MILLS
LAWRENCE, MASS.

Bradford Spun Worsted Yarns, Natural and Slub-dyed Colors and Mixes.

MONOMAC SPINNING CO.
LAWRENCE, MASS.

French-spun Worsted and Merino Yarns. Specialty Yarns—Rabbits Hair, Rayon, Acetate and Other Blend Yarns.

NONQUITT MILLS
NEW BEDFORD, MASS.

Cotton and Spun Rayon Yarns, Merino Blends, Specialty Rayon and Wool Mixtures.

WILLIAM WHITMAN COMPANY, INC.

SELLING AGENTS

BOSTON, 78 Chauncy St. — NEW YORK, 261 Fifth Ave.
PHILADELPHIA, 1600 Arch St. — CHARLOTTE, Commercial Bank Bldg.

old engineer, who helped to develop the highly concentrated electron beams that sharpened the eyes of microscopes and other electronic devices, has been appointed by Westinghouse as manager of product performance analysis.

National Foreman's Institute, Inc., Deep River, Conn., has added Bruno R. Neumann, until recently senior economist with the Planning Division of WPB, to its staff as labor economist and editorial director. He will make his headquarters at the company's editorial office, 527 Fifth Avenue, New York.

The B. F. Goodrich Co., Akron, Ohio—W. S. Richardson, general manager of the chemicals division of the company, has been elected vice-president of Hycar Chemical Co. in addition to his duties with Goodrich. He succeeds Raymond W. Albright who recently resigned to become vice-president and general manager of Distillation Products, Inc., Rochester, New York.

H. W. Butterworth & Sons Co., Philadelphia—A plan for re-organization has been approved by the board of directors and stockholders which will enable junior executives, superintendents, foremen and others connected with the company in executive or supervisory capacity to secure stock and thus have a definite interest in the growth of the company. The plan also made it possible for the investors and decedents' estates now holding stock in the company to exchange it for an obligation of the company and so facilitate the repayment of their investment. The plan of re-organization involves creation of a debenture issue, not to exceed $300,000. The holders of company stock not actively engaged in the management would be given an opportunity to exchange one share of stock for one $50 bond of the debenture issue. Persons actively associated with the management, who are stockholders, have waived the right to exchange their stock for debentures.

C. J. Tagliabue Mfg. Co., Brooklyn, N. Y., has elected A. F. Rucks as president and general manager. He succeeds the late C. D. Waters. J. T. Kottcamp, vice president of Johns Manville Products Corp. has been elected to the board of directors of the company.

International Nickel Co., New York, has added Dr. V. N. Krivobok, authority on stainless steel and former Professor of Metallurgy at the Carnegie Institute of Technology, to its Development and Research Division.

CHARLES SCHWARZLER, who has been named manager of the export department by The Foxboro Co., Foxboro, Mass., succeeding the late Henry B. Moelter. Mr. Schwarzler was formerly manager of the Sales Promotion Department.

E. I. du Pont de Nemours & Co., Atlanta, Ga., have appointed Ben G. Warwick as representative in North Carolina, succeeding E. M. Hill who has been assigned other duties within the organization. Mr. Warwick will be located at 500 North Tryon St., Charlotte, N. C. This territory is under the management of S. W. Quisenberry, of Atlanta, Southeastern District Manager, Maintenance Sales.

Norman M. McDowell Associates, rebuilders and dealers in used machinery, will move to new quarters at 2568 Park Ave., New York, next month.

Cochrane Corp., Philadelphia, has acquired exclusive sales rights to the line of Rotameters manufactured and hitherto sold by Rotameters, Inc., Jenkintown, Pa. Cochrane has manufactured and sold a recording area type meter for the last seven years and the addition of the rotameter, or indicating type of area meter, rounds out the line.

Textile Finishing Machinery Co., Providence, R. I., will be sold to Jacob Ziskind of Fall River, for $335,000 according to the receivers' plan which has been authorized by the court.

Crompton & Knowles Loom Works, Worcester, Mass., has elected to its directorate Harold R. Wing supply sales manager and with the company since 1917. He succeeds Fred J. Bowen, lately retired.

Make the next belt you buy
the best belt
you ever bought!
Make it
HOUGHTON'S
V-I-M TRED
PAT'D
2-18-35

What
VIM TRED
LEATHER BELTING
offers you . . .

America's premier power transmission belting . . . for today's emergency . . . for tomorrow's economy . . . for these reasons:

1 **More Production**—at a time when every available means of increasing output must be utilized to the utmost. VIM Tred's high coefficient of friction, resulting from our own exclusive mineral tannage of highest grade hides, means more power delivered to the machine.

2 **More Grip—Less Slip**—due to patented treaded surface which increases tension per unit of pressure area, without running the belt excessively tight. Too great a tension to overcome slipping of a smooth belt will harm the fibrous structure and put undue strain on bearings.

3 **Longer Life**—this feature is related to the above, because a belt run too tight wears out faster. VIM Leather itself has higher tensile strength, which lengthens useful life. Laps hold better, fastened tightly with our own waterproof cement.

4 **Flexibility**—VIM Tred Leather belts are not stiff. They hug the pulley at all speeds. They are resilient—can absorb shock loads repeatedly, without damage to the belt.

5 **Ability to Stand Heat**—as much as 75° higher temperature than any other type of leather.

6 **Proof Against Oil**—VIM Tred Leather belts may be impregnated, when so specified, with a special oil-resisting filler which sheds oil, preventing it from being absorbed into the leather.

* * *

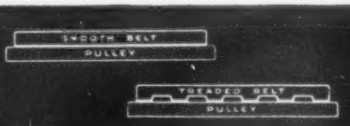
Remember this, please: the most economical belt for the long run is one which, although perhaps slightly higher in first cost, will transmit power most effectively with longer life, less maintenance, greater production per dollar invested.

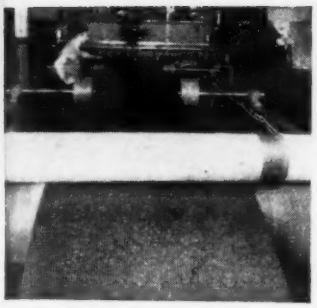
E. F. HOUGHTON & CO.

VIM'S TANNAGE

VIM Tred Leather belts are made from leather tanned by an exclusive mineral process that shrinks, rather than plumps up the hide. VIM Leather weighs about 25% less per square foot than the average vegetable tanned belt, yet it contains almost twice as much fiber. It's the fibrous content that gives a belt its strength. Light weight means less power required to run the belt. It also means greater flexibility and less fiber distortion than with a stiff, unwieldy belt being run rapidly over small pulleys. Every batch of leather made in our tannery is carefully tested by our Laboratory before it is accepted by the Belt Shop.

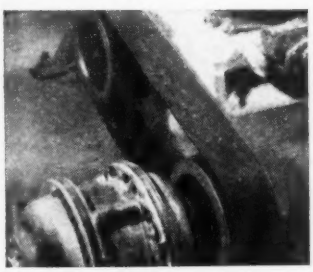
VIM'S TREAD





Treading a leather belt to give it more grip, less slip, is a patented feature available only from Houghton. You know the danger of smooth tires on your car; the principle is similar in leather belting. The reason treaded belts grip better is because, by indenting a portion of the surface, we increase the pressure on the remaining area which contacts the pulley. This concentration of tension relieves the necessity of running belts too tight, thus lengthen belt life. Treading, done under pressure by the huge special machine pictured at the left, does not harm the leather nor destroy its elasticity or ability to absorb shock loads.

VIM'S REPUTATION



"Whenever we have trouble on a tough drive," writes a manufacturer, "we specify VIM Tred. If the drive is properly planned, your belt will carry the load." That is VIM Tred's reputation, built over many years of quality leadership. But why limit VIM Tred to *tough* drives? If it will pull heavy loads, it will certainly handle normal drives efficiently, too, and will prove to be the lowest cost belt on the basis of number of units produced. Make your next belt a VIM Tred. Use Houghton's engineering service to insure proper application and long belting life.

TWO BELTS ARE BETTER THAN ONE

Double belts are more than twice as efficient and long-lived as single belts. Hides come from Mother Nature; their duty was solely to protect the animal; their tensile strength varies somewhat from backbone to side. But skilled workmen can match the two plies of a double belt scientifically; they take one ply's strongest section, and match it against the other ply's weakest section. When the two are cemented permanently together, strength will be uniform throughout. A double belt will not stretch more on one edge than on the other, hence will not run crooked. It requires less "take-up". Its joints are staggered, never adjacent, so solid leather of one ply reinforces the lap in another. A double belt will take unexpected overloads. Consider these facts when you buy your next belt. And make it a VIM Tred—"More Grip, Less Slip".

303 WEST LEHIGH AVENUE, PHILADELPHIA 33, PENNA.
CHICAGO DETROIT SAN FRANCISCO

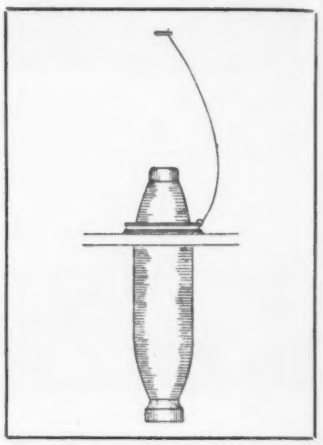
ABBOTT MACHINE COMPANY

WILTON, N. H.

Southern Representative, L. S. Ligon, Greenville, S. C.

★ ★

WE RECOMMEND:



SPIN ALL YARNS ON TO LARGE WARP BOBBINS UP TO 8 OZ. DEPENDING ON COUNT

SAVE DOFFING AND INCREASE SPINDLE EFFICIENCY

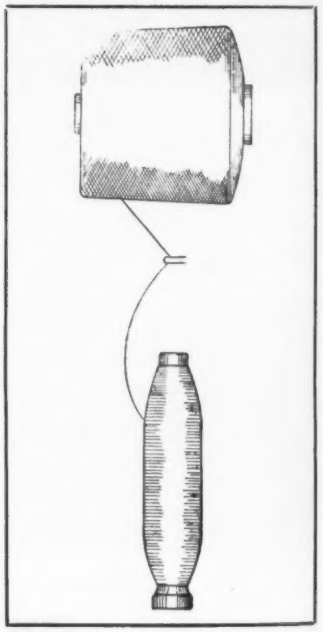
WIND AND SLUB TO LARGE 4° CONES AT 600 TO 750 YARDS PER MINUTE

900 TO 1000 NET BOBBINS PER HOUR PER OPERATOR

USING:-

ABBOTT TRAVELING SPINDLE

AUTOMATIC CONE WINDER



FROM THESE CONES:-

WARP AT HIGH SPEED FROM A MAGAZINE CONE CREEL

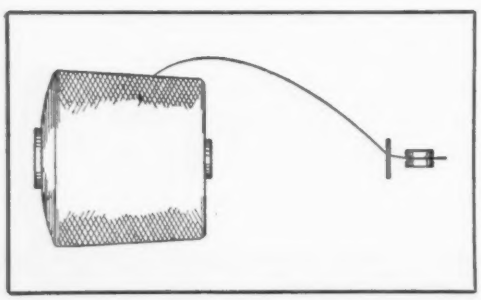
OR

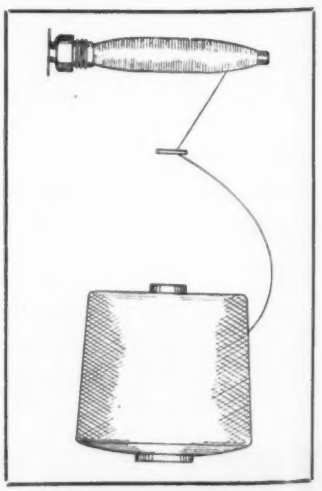
WIND LOOM QUILLS

USING:-

ABBOTT AUTOMATIC QUILLER

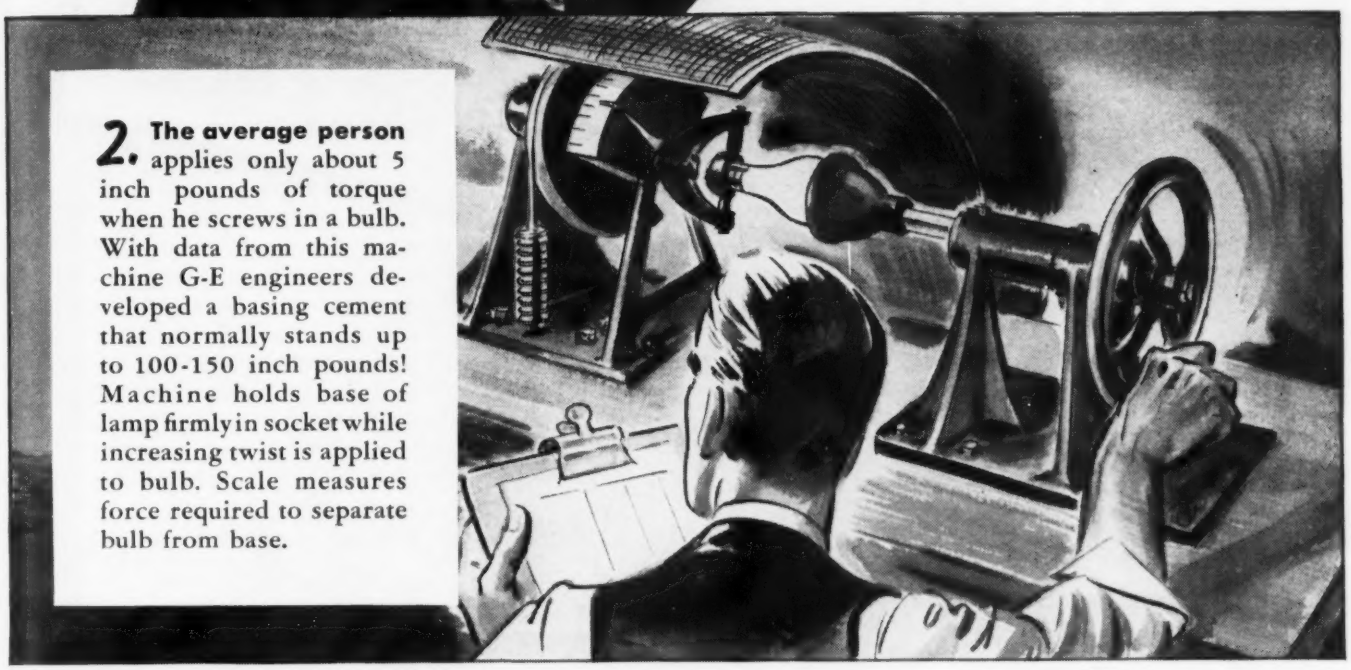
1000 TO 2000 BOBBINS PER HOUR PER OPERATOR





Ever try to wring a lamp bulb's neck?

1. In some industrial plants and in outdoor locations, atmospheric conditions sometimes made it difficult to remove burned-out lamp bulbs. Occasionally the glass bulb would come loose, leaving the brass lamp base in the socket. Then G-E engineers built a machine that would "wring a lamp bulb's neck."



2. The average person applies only about 5 inch pounds of torque when he screws in a bulb. With data from this machine G-E engineers developed a basing cement that normally stands up to 100-150 inch pounds! Machine holds base of lamp firmly in socket while increasing twist is applied to bulb. Scale measures force required to separate bulb from base.

3. A similar devise is used to insure the strength of the basing cement in G-E Fluorescent lamps. The torque test is only one of the more than 480 tests and inspections that guard the uniform high quality of G-E Mazda lamps—with a vigilance that never relaxes. And each of them is one more reason to be sure you get lamps that wear the G-E Monogram.

THE BEST INVESTMENT IN THE WORLD IS IN THIS COUNTRY'S FUTURE — BUY WAR BONDS

"TO MAKE LAMPS STAY BRIGHTER LONGER"
The Creed of G-E RESEARCH

G-E MAZDA LAMPS

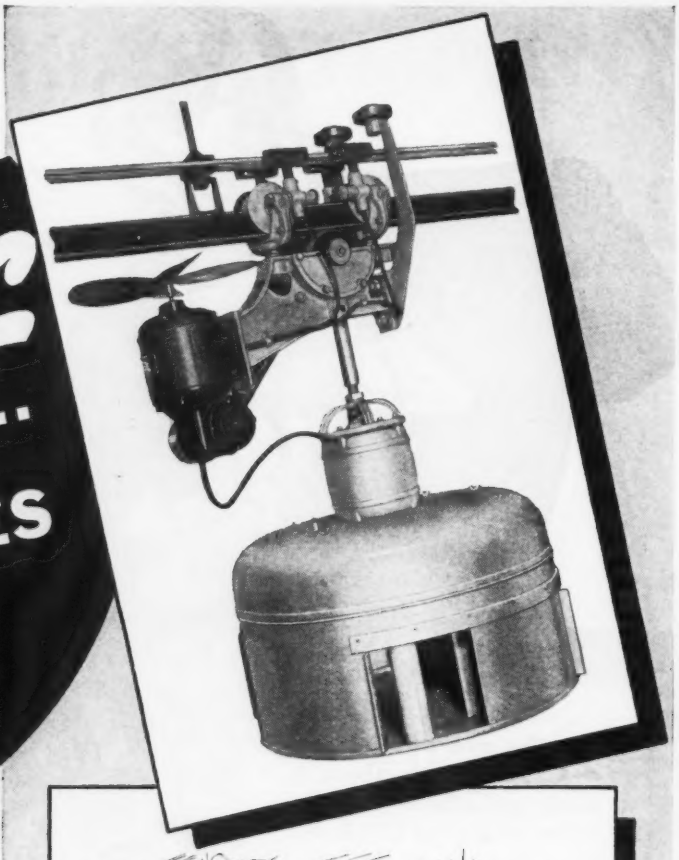
GENERAL ELECTRIC

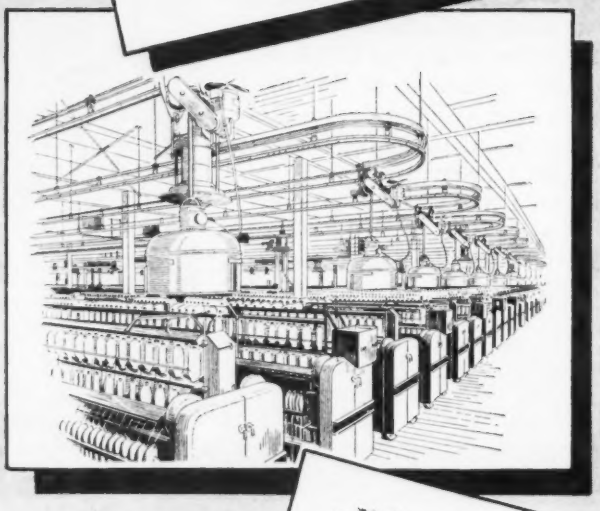
Hear the General Electric radio programs: "The G-E All-Girl Orchestra" Sunday 10 p. m. EWT, NBC; "The World Today" news, every weekday, 6:45 p. m. EWT, CBS.

AMERICAN MONORAIL

Cyclonic CLEANING...

CLEANS FRAMES AND CEILINGS!





BESIDES its regular job of cleaning spinning, winding, and twisting machines, American MonoRail Automatic Cleaners prevent accumulation of lint on overhead equipment. A 16" high-pitch fan sends a blast of air against the ceiling to keep it clean.

Let an American MonoRail engineer explain the advantages of a systematic removal of lint to replace inefficient hand cleaning. Send for 24-page book on Automatic Cleaners.

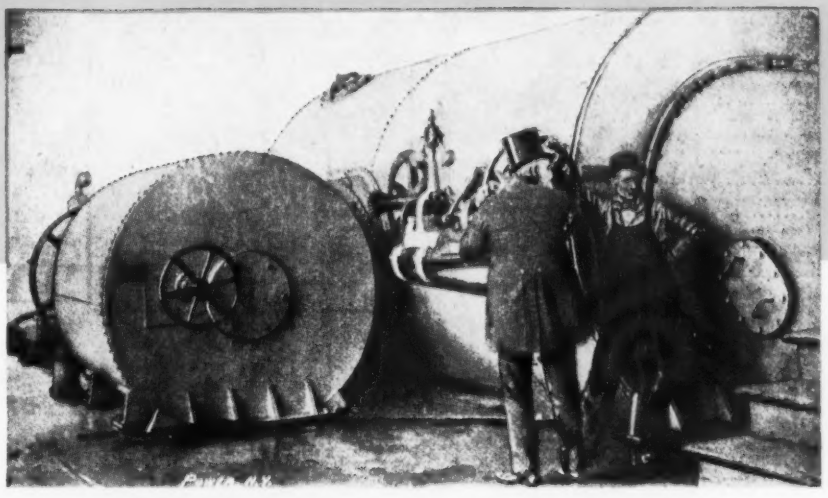
THE AMERICAN MONORAIL CO.

13108 ATHENS AVENUE • CLEVELAND 7, OHIO

APRIL 15, 1894

$1,000,000

WAS RISKED ON A THEORY!



Starting the power plant at Columbia Mills

THERE was a tense moment at the Columbia Mills Company, Columbia, S.C., in the afternoon of April 15, 1894, when President Aretus Blood threw the main power switch and started the new mill's electric motors. His company had "burned its bridges" behind it, when it chose electricity instead of water or steam power. It had installed two G-E 500-kw a-c generators in its power plant on the bank of the Congaree River and 17 G-E 65-hp induction motors in its mill building—700 feet away. Had the newfangled theory of electric power transmission failed to pan out in practice, the new venture would have faced ruin. There was no alternate method of obtaining power economically, because the mill had been erected too far from the river.

The electric equipment was put into operation in 1894, and 31 years later not only was the apparatus going strong, but the stators of only seven of their motors had been rewound in that period.

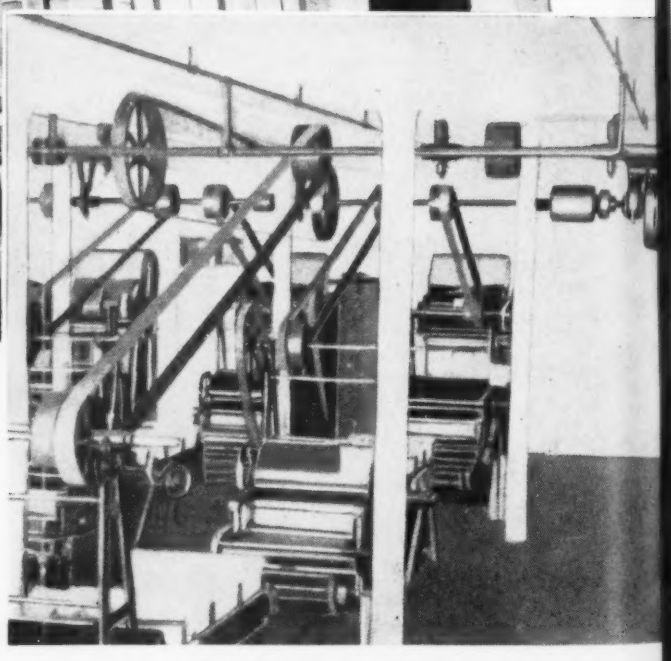
This was the first complete electrification of a textile mill. Today, there are several million horsepower in electric motors installed in the textile industry—a striking tribute to the courage and faith of the founders of the Columbia Mills Co.

BUY WAR BONDS

GENERAL ELECTRIC

1895 INCREASED PRODUCTION ...IMPROVED QUALITY

Original switchboard at Columbia Mills



Old view of picker room, showing original ceiling-mounted G-E motor (upper right)

UNDER date of March 7, 1895, Charles K. Oliver, treasurer of Columbia Mills, wrote to General Electric:

"On the subject of our Electrical Power. I am much pleased to write that we are thoroughly satisfied as to its advantages and success as a system of transmission of power.

"It is the neatest, cleanest, and to our idea the smoothest system of power one could have, and we should not think of using any other system of power were we to fit up another mill.

"The uniformity of speed which we obtain from the electrical transmission enables us to get *a great deal of product from our machinery, and consequently improved quality.*"

31 YEARS LATER, only five of the 17 original G-E motors had been rewound because of "burn outs," and two had been reconditioned to serve as spare equipment. Some of them had run almost 32 years on day operation and at least 10 years on night operation. That's performance!

1944..."we have profited well from our continuing use of G-E equipment"

Columbia Mills
of
Mt. Vernon-Woodberry Mills, Inc.
Columbia, South Carolina

January 10, 1944

Mr. F. C. Alexander
General Electric Company
Columbia, South Carolina

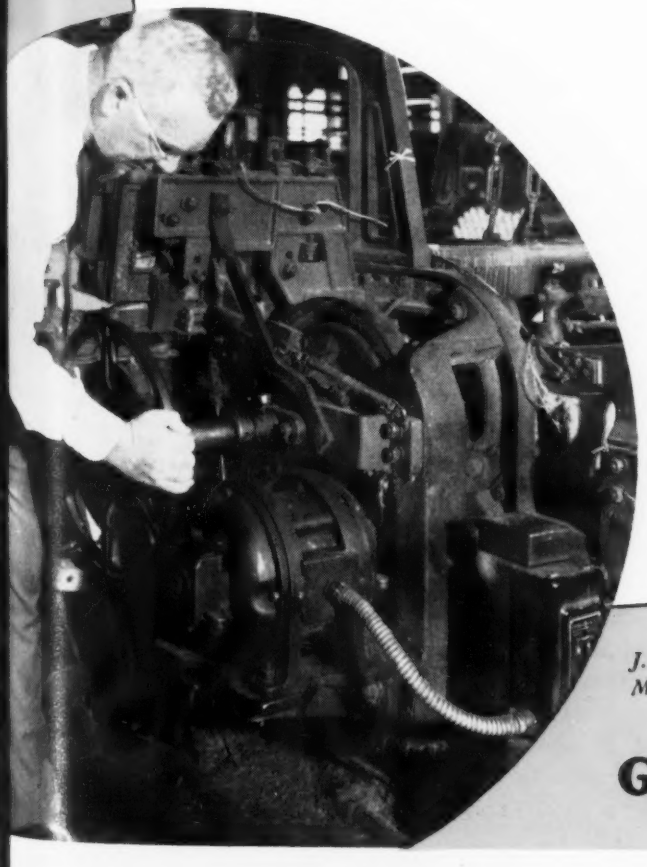
Dear Mr. Alexander:

Nearly a half century ago Mr. Oliver, then treasurer of our mills, wrote your Company testifying to our great satisfaction with electric drive and General Electric equipment.

I am happy to confirm, five decades later, that we have profited well from our continuing use of G-E equipment and from the application engineering service we have received from your many fine associates who are so expert in their field.

Yours very truly,

P C Smith Agent
COLUMBIA MILLS CO.



J. R. Hilton, superintendent of Columbia Mills, adjusts the speed of a loom drive

GENERAL ELECTRIC

661-20-8421

YOU, TOO, CAN PROFIT BY USING G-E EQUIPMENT

Polyphase, screenless, open textile motor—particularly suitable for such applications as spinning frames and roving frames.

It's dependable

G-E equipment for textile mills is specially designed for service under the rigorous conditions prevalent in many textile processes. Its many special features are a direct result of experience gained in a half century of designing electric equipment for textile applications.

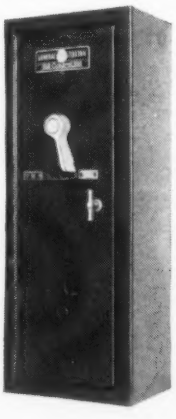
Enclosed motor—specially designed for long life on loom drives

It's in step with modern practice

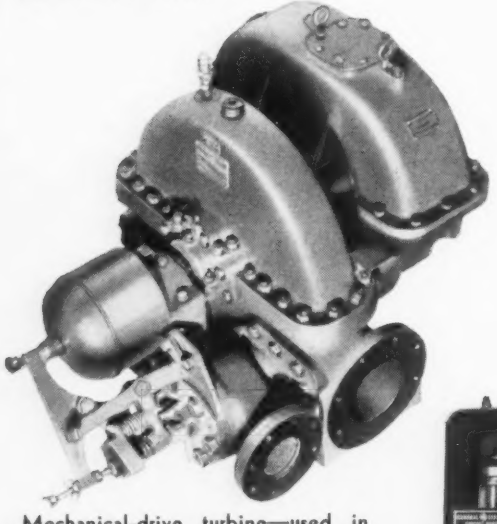
Thanks to the close co-operation of many leading textile manufacturers and G-E application engineers, G-E equipment is tailored to meet your present-day processes. It is redesigned as necessary to fill new requirements and meet new operating conditions.

The G-E line is complete —meets every textile need

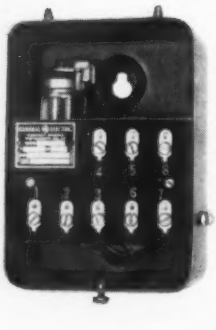
Turbines or weft straighteners, batcher motors or air-conditioning equipment—no matter what your requirements—G.E. has the electric equipment needed for a textile mill. Expert engineers do the design and application work, relieving your organization of the task of fitting together the various electric units that you require.



Totally enclosed motor starters, with overload and short-circuit protection, for lint-laden atmospheres.



Mechanical-drive turbine—used in conjunction with a-c generator and a-c motors to provide lowest-cost operation of range drives.



Electronic relay—used on drop-wire applications to assure operation of the stop mechanism, despite lint accumulations or corrosion on conducting surfaces.

G-E engineering service is nearby—and prompt

There is a country-wide network of G-E offices staffed with engineers who are ready to help you solve your electrical problems. Why not make use of our facilities when you are considering electric equipment—they were set up for your convenience. *General Electric Company, Schenectady 5, N. Y.*

ELECTRIC EQUIPMENT FOR TEXTILE MILLS

PUT MOLD OUT OF BUSINESS

DOWICIDES CONTROL
Mold Decay Termites

Penicillin is one of the rare examples of mold doing a beneficial job. But for the most part, mold has always been an enemy—especially in your business and in your product.

Dow has devoted many years' research to the development of 17 related products—the Dowicides—to defeat mold and bacteria growth in their attacks on industry. These products are, in a sense, new, but they are nevertheless already doing an outstanding job in putting mold out of business in the paper, paint, textile and leather fields.

Sizing materials are often held in solution form for extended periods, and are susceptible to mold attack. Dowicide is used extensively in the textile industry to prevent such attack. Dowicides are also incorporated into fabrics to prevent mold growth on the textile itself wherever it may be exposed to high humidity. When materials are brought in contact with the soil, Dowicides can also be employed to provide rot resistance. The application of Dowicides to textiles is a simple addition to standard manufacturing processes. Write for details on how to put mold out of business—your business!

THE DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN

New York • Boston • Washington • Philadelphia • Chicago
St. Louis • Houston • San Francisco • Los Angeles • Seattle

DOWICIDE

GERMICIDES AND FUNGICIDES

Other Dow Products serving the Textile Industry: Ethocel, Saran, Methocel, Caustic Soda, Vat Dies and many others.

DOW
CHEMICALS INDISPENSABLE TO INDUSTRY AND VICTORY

PINS *and* LAGS

COTTON PICKER LAG — FLAT PINS
RAG OR SHODDY PICKER LAG
STEEL-FACED RAG OR SHODDY PICKER LAG
WASTE MACHINE MAIN CYLINDER
CARDING BEATER LAG

WE OFFER
QUALITY . . . *and* . . . UNIFORMITY

PINS A completely new HARDENING and TEMPERING Department insures lasting quality and uniformity in the pins. We manufacture in any type, size or quantity.

LAGS Kiln dried Rock Maple with every shipment tested to insure long life and no splitting. Lags of every type for every purpose are available.

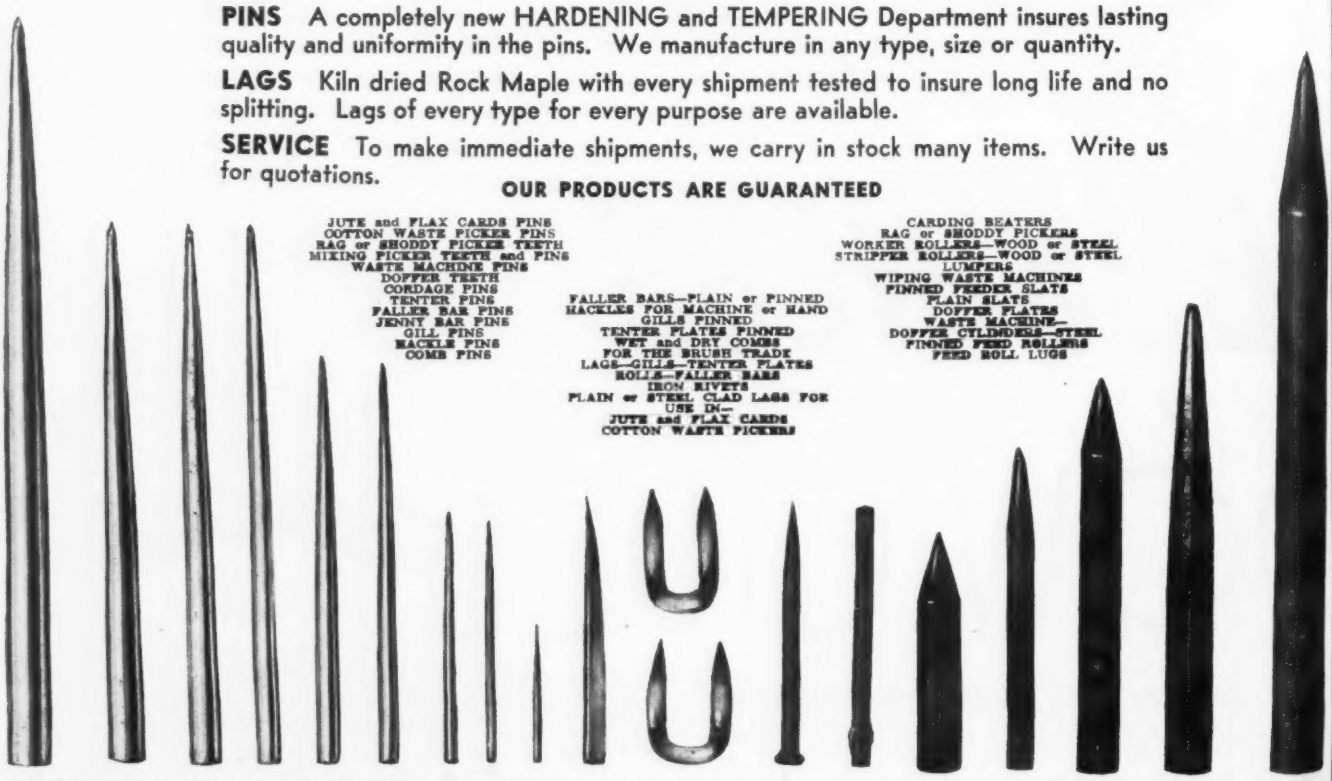
SERVICE To make immediate shipments, we carry in stock many items. Write us for quotations.

OUR PRODUCTS ARE GUARANTEED

JUTE and FLAX CARDS PINS
COTTON WASTE PICKER PINS
RAG or SHODDY PICKER TEETH
MIXING PICKER TEETH and PINS
WASTE MACHINE PINS
DOFFER TEETH
CORDAGE PINS
TENTER PINS
FALLER BAR PINS
JENNY BAR PINS
GILL PINS
HACKLE PINS
COMB PINS

FALLER BARS—PLAIN or PINNED
HACKLES FOR MACHINE or HAND
GILLS PINNED
TENTER PLATES PINNED
WET and DRY COMBS
FOR THE BRUSH TRADE
LAGS—GILLS—TENTER PLATES
ROLLS—FALLER BARS
IRON RIVETS
PLAIN or STEEL CLAD LAGS FOR USE ON—
JUTE and FLAX CARDS
COTTON WASTE PICKERS

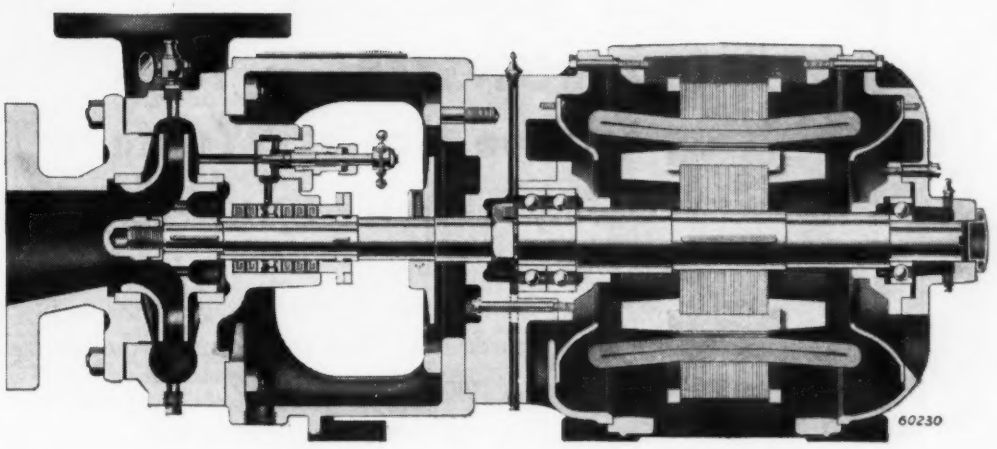
CARDING BEATERS
RAG or SHODDY PICKERS
WORKER ROLLERS—WOOD or STEEL
STRIPPER ROLLERS—WOOD or STEEL
LUMPERS
WIPING WASTE MACHINES
FINNED FEEDER SLATS
PLAIN SLATS
DOFFER PLATES
WASTE MACHINE—
DOFFER CYLINDERS—STEEL
FINNED FEED ROLLERS
FEED ROLL LUGS



WILLIAM CRABB & CO. **301-3rd Ave., Newark, N.J.**

HOW LONG WILL A PUMP LAST?

that depends ....



Cross Section of the Cameron Motorpump

How long a pump will last depends both on what you do with it and how the manufacturer designed and built it. On most jobs the life will be many years. On some services where pumps must handle corrosive liquids, careful selection of materials is necessary to insure uninterrupted service. Correct selection and installation and proper maintenance contribute materially to pump life.

The pump builder's job—what materials he selects, what manufacturing tolerances he maintains, what factors of safety he provides—is very important. Take the Ingersoll-Rand Motorpump as an example. This compact and efficient pump has an extra-heavy shaft and large bearings, and has rigid sections to preserve alignment. These and other details assure that the Motorpump will more than do its share in providing long years of trouble-free operation. Ingersoll-Rand Company, Cameron Pump Division, 11 Broadway, New York 4, N. Y.

The Cameron Motorpump

The Ingersoll-Rand service engineer will be glad to give you further details on the Motorpump. There are also other Ingersoll-Rand pumps for practically any centrifugal pump application.

Ingersoll-Rand

9-402

OSCAR HEINEMAN CORPORATION

THROWSTERS of Yarns for the Hosiery Trade

Quality Products for Fifty Years

We invite hosiery manufacturers to submit their throwing problems. We are prepared to process your yarns in the manner best suited for your particular needs.

While a considerable part of our equipment is operating on yarns to be used in various kinds of materials for our Armed Forces, which must be given preference, we are putting forth our best efforts to give our customers, operating on Civilian Goods, satisfactory service.

We are proud of the fact that we were pioneers in the Practical application of *Avconit in the sizing and processing of high twist rayon yarns.

Our processing will be found equally satisfactory on either Viscose or Acetate yarns. We recommend our R-50 *Avconit formula for Bemberg and Viscose unoiled yarns and our R-60 formula for oiled yarns.

For Celanese and other Acetate yarns we recommend either our R-50 *Avconit formula or R-70 formula depending on the method used in dyeing.

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123 S. Broad St.
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N. P. Murphy
813 Guilford Bldg.
Greensboro, N. C.

C. D. Gott Co.
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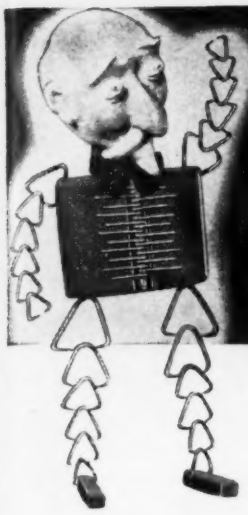
*Trade Mark
American Viscose Corp.



SAVE 30% ON YOUR BELT LACING COSTS

The Timken Roller Bearing Co. of Canton, Ohio, has effected a saving of about 30% in consumption of belt hooks by using Clipper Belt Hooks, Clipper Lubrihide Pins and Clipper Speed Lacers.

You, too, can make worth-while savings by using ALL THREE Clipper products.

Remember, only Clipper Belt Hooks are packed with the long wearing **Lubrihide Pins.**

Clipper No. 9 Portable laces belts up to 6 inches wide in one quick, easy operation.

The **Clipper No. 9 Portable Lacer** develops pressures up to 16 tons. With such pressure, hook legs can be embedded flush with the surface of any kind of belt and points clinched.

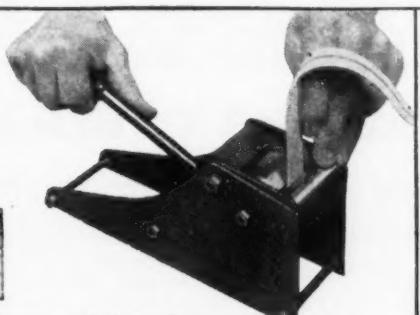
The scientific action of the jaws forms a perfect line of well rounded loops permitting the use of maximum diameter **Lubrihide Pin,** also providing equal distribution of pulling strain on every hook. A belt joint so made will outlast by two to three times one made with an old-style portable lacer.

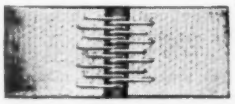
Scientific action of Jaws forms

a perfect loop for connecting pins.

We suggest that you check YOUR belt lacing situation. Send for folder describing the powerful Clipper No. 9 Portable Lacer and other Clipper products. Phone your Mill Supply Jobber for a demonstration!

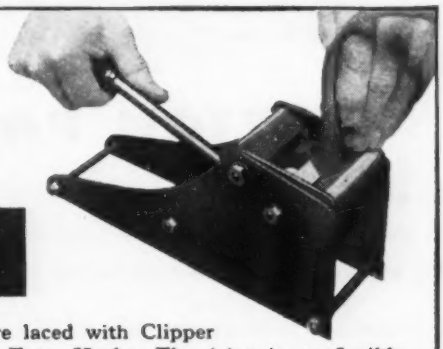
CLIPPER SPINDLE TAPE LACING EQUIPMENT





You can lace spindle tapes—10 times faster than stitching — with Clipper No. 25 Spindle Tape Hooks. The spinning frame is shut down only long enough to place the new tape on the pulleys and join the ends with the connecting pin — a short, easy operation. Tapes run true—last longer—run smoother—require less tension. VIBRATION is ELIMINATED.

CLIPPER CONDENSER TAPE LACING EQUIPMENT



Condenser tapes are laced with Clipper No. 25 Condenser Tape Hooks. The joint is as flexible as the tape itself. Clipper Laced Condenser Tapes can be installed in a fraction of the time required for endless tapes. Tape may be purchased in the roll at considerable saving, and cut to length. WRITE FOR INFORMATION.

CLIPPER BELT LACER COMPANY GRAND RAPIDS, MICHIGAN, U. S. A.

COTTON PACKS A MIGHTY WALLOP!

Second only to steel as the most vital war material, cotton is used in over 10,000 different items needed by our armed forces, including clothing, equipment and even munitions.

As can be seen in the official U. S. Army photograph, a vast amount of cotton is needed to outfit a single gun crew. Clothing, leggings, web belting, helmet bands, gas mask carriers, and many other essential items are all made of cotton to Army specifications.

DURENE 2-ply Mercerized Cotton Yarn —COMETCORD 4-ply Mercerized Cotton Yarn for 6 x 3 Lines—S-P-Y, the Moisture Resistant Mercerized Yarn—NEOPHIL Nylon Thread for Seaming—Looping Nylon Hosiery—PREFERRED BRAND Seaming & Looping Thread—ENTWIST Merceriz d Cotton Yarn and Nylon Twisted Combination—WEARTWIST, the Domestic Mercerized Lisle—DYED YARNS

Burlook
4 WAYS BETTER
than ordinary cotton
EXTRA COMFORT more absorbent
EXTRA STRENGTH longer wear
EXTRA QUALITY lasting hues
EXTRA SERVICE easy to wash

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123 South Broad Street, Philadelphia 9, Pa.
—and in the South
ABERFOYLE MANUFACTURING COMPANY
Belmont, North Carolina
Representatives in principal textile centers of the world

ESTABLISHED 1883

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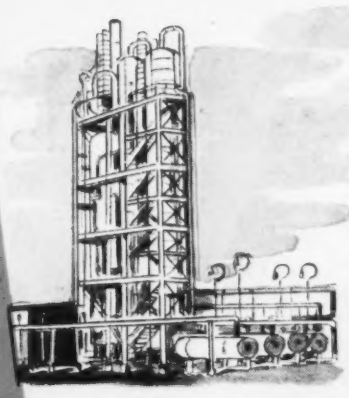
AMERICA'S OLDEST MERCERIZERS OF FINE COTTON **YARNS**

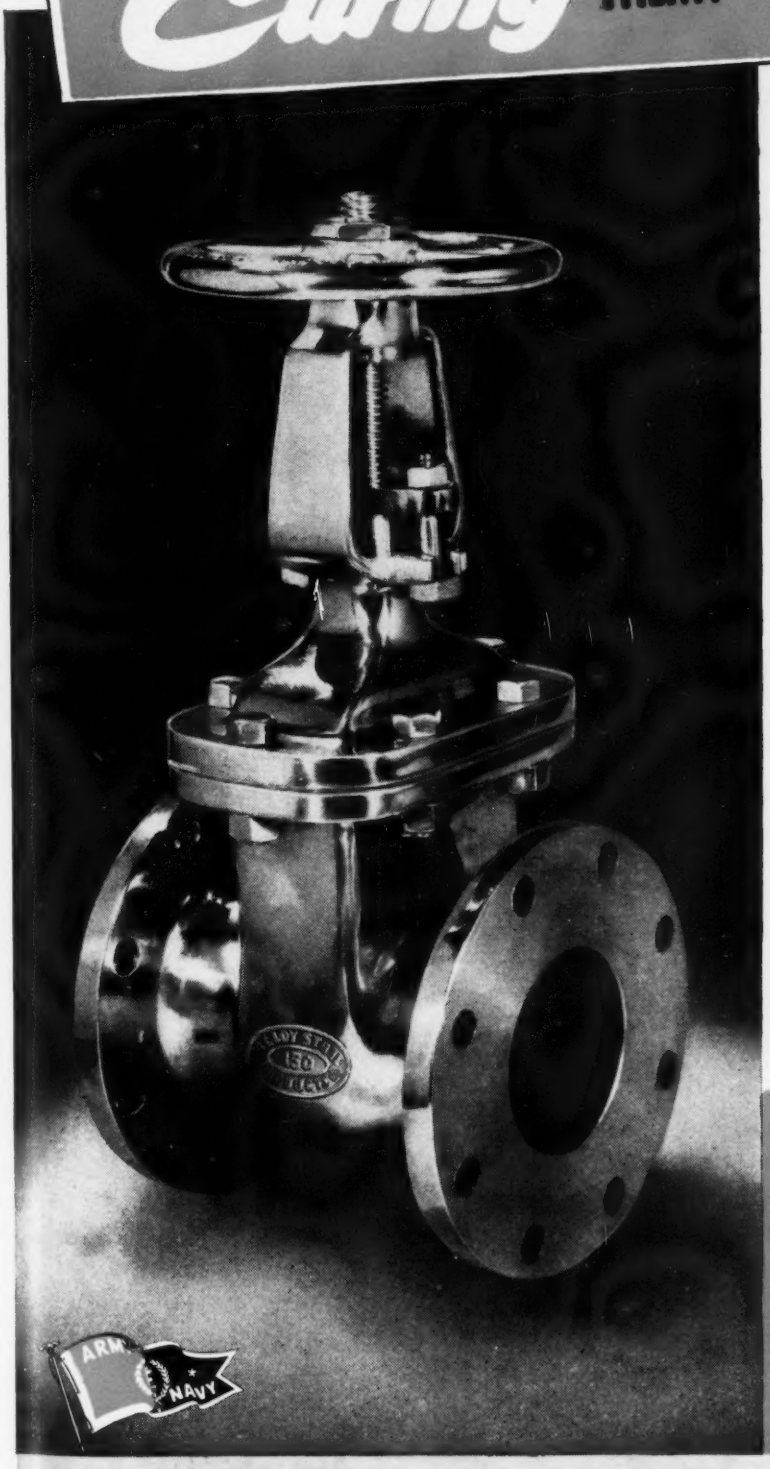
Preventing CONTAMINATION AND CORROSION COSTS LESS THAN Curing THEM!



The old saw, "An ounce of prevention is worth a pound of cure" applies well to process pipelines. It is especially true where it is necessary to use clarifiers and chemical treatments to remove or inhibit metallic contamination and corrosion. Such curatives often upset delicate processes and are more expensive than simple prevention.

Begin your corrosion prevention campaign by protecting your fluid gateways with Aloyco Stainless Steel Valves—the valves made *throughout* of the stainless alloy you require, not just a plating or trim. Aloyco Valves fit any piping layout because they are made in a complete range of types and sizes. Aloyco Valves require less maintenance because they are the products of experienced foundry practice, accurate machining and rigid inspection. Nothing has been skimped under pressure of war.

ALOYCO Stainless Steel Valves and Fittings are available now for installations on high priorities and for maintenance and repairs under M. R. O. regulations.



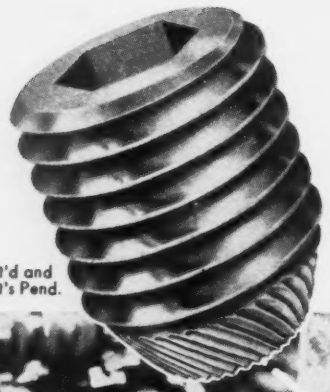
ALOYCO

Stainless Steel VALVES and FITTINGS

GATE VALVES • GLOBE VALVES
Y VALVES • CHECK VALVES
LEVER THROTTLE GATE VALVES
TANK VALVES • SCREWED FITTINGS
FLANGED FITTINGS
GAUGE GLASS FITTINGS

Alloy Steel Products Company, Inc., 1304 West Elizabeth Avenue, Linden, N. J.

WHEN A LOOM GOES INTO *Action*



Pat'd and Pat's Pend.

UNBRAKO

REG. U.S. PAT. OFF.

Self-Locking Hollow Set Screws with KNURLED POINTS

Knurling of Socket Screws originated with "Unbrako" years ago.

. . . vibration is excessive, and set screws that don't hold can cause costly, time-wasting delays and even breakdowns. Don't endanger your machinery. Insure against trouble and use "Unbrako" Self-Locking Hollow Set Screws. When tightened in the usual manner, their knurled points *dig-in and hold tight* regardless of vibration. Yet if adjustments are necessary, they can be removed in a jiffy . . . and you can use them again and again. Sizes: No. 4 to 1½" diameter. Full range of lengths. Catalog gladly sent upon request.

OVER 40 YEARS IN BUSINESS

STANDARD PRESSED STEEL CO.

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RAINBOW OF STEEL . . .

Symbol of the ties that bind Canada and the U. S. together in friendship is the new Rainbow Bridge recently erected across the gorge below Niagara Falls. Built in harmony with the rugged Niagara landscape, it is a promise of still greater cooperation between the two countries as well as a permanent answer to the challenge of the deep gorge and the swift currents that flow through it.

This bridge also epitomizes the growth of the Niagara region as one of America's most important industrial centers. With the Falls as a source of almost unlimited hydroelectric power, this area has become a fountainhead of strength for the nation at war. Out of its factories are pouring huge supplies of chemicals, chemurgical products and many other essential materials. And Niagara Alkali, pioneer chemical manufacturer in this district, is helping to set a new pace in speed of production and efficiency of service in meeting these vital needs.

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CARBONATE OF POTASH · LIQUID CHLORINE

An Essential Part Of America's Great Chemical Enterprise

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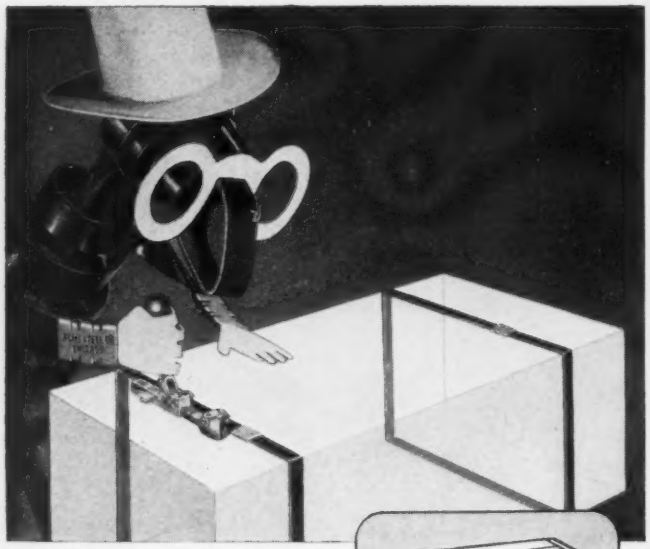
Mullen Testers

Doc. *Steelstrap*

REDUCES THE "WASTE-LINE"

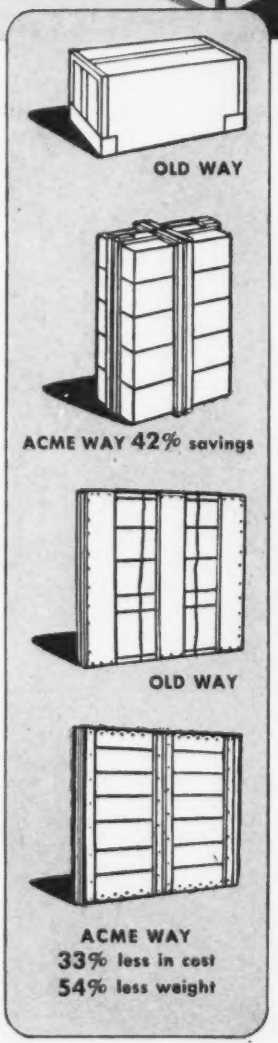
ALL ALONG THE "SHIPPING-LINE"



Are your shipping packs physically fit?—or are they overweight—possibly wasteful in packing materials and excess freight?—Are they an easy prey to the hazards of every-day shipping?

Let Doc. Steelstrap, who symbolizes Acme's complete shipping service, give your packing practices a complete "check-up"—advise you as to the possibilities of "waste-line" reduction.

To the right you may see two actual cases of results following Doc. Steelstrap's diagnosis. Write for our technical advice on your problem—there is no obligation.



ACME STEEL CO. CHICAGO

ACME STEEL COMPANY

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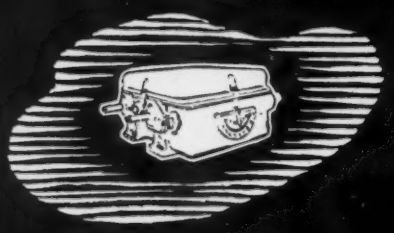

If it's speed control, it's a job for Lewellen

★ The problems of modern, highly-efficient speed control require the skill of specialists. The experience of this organization—pioneers in speed control—is available to you. This is our business; we have no sidelines, no other interests. As a result of this concentration over more than 45 years, Lewellen Engineers are constantly finding new and better ways to apply variable-speed control to fixed-speed machines and to hundreds of machines using inefficient speed-control methods. Often, results are amazing.

Thus, we invite you to LOOK TO LEWELLEN to give you a dependable answer to your speed-control problem for the machines you use today and the ones you plan for tomorrow. Wire, phone or write!

LEWELLEN MANUFACTURING COMPANY
COLUMBUS, INDIANA

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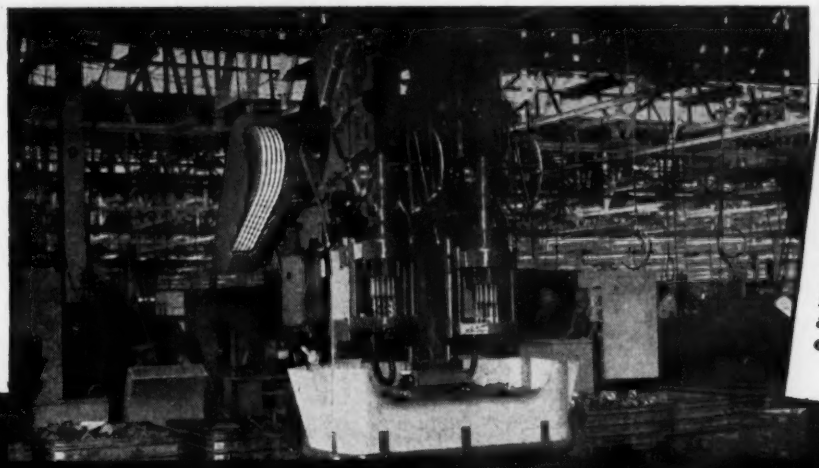
LEWELLEN

Variable Speed

TRANSMISSIONS
MOTOR PULLEYS



Here, in one of the nation's leading Aircraft factories, belts on some machines were subjected to a severe oil condition. The Gates Field Engineer recommended Gates V-Belts of special synthetic rubber. Carefully kept records show that these belts are regularly wearing 3 times to 4 times as long as ANY belts of natural rubber ever used.

In This Leading Aircraft Factory . . . .

GATES Synthetic Rubber V-Belts

Your Gates Field Engineer — listed in your telephone directory—will tell you which type of Gates V-Belt best meets your special needs.

Wear *3 TIMES* as *LONG* As Any *NATURAL RUBBER* V-Belts Ever Used!

For more than *6 years,* Gates Field Engineers have been recommending and installing Gates V-Belts of special synthetic rubber wherever a severe oil or heat condition exists.

These belts have now told their service story in aircraft factories, in steel mills, in ordnance plants, in machine parts factories and many other kinds of plants all over the United States. *Everywhere,* they have completely whipped the problem of severe oil conditions. They are wearing two and three and even *four times* as long as any belts of *natural rubber* ever used.

Isn't this a convincing illustration of what you stand to gain by calling the Gates Field Engineer whenever you have the slightest trouble with any drive problem?

You may not have an oil or heat problem — yet *other* service conditions may be such that a V-belt of some special construction can most profitably be used. For example, in your particular installation, Static-Safety V-belts may best fit your special need. Again, Rayon Cord V-belts or V-belts with tension members composed of flexible steel cables may prove to be the most efficient and economical.

In any case, the wisest move you can make is to phone the Gates Field Engineer. He is thoroughly competent to analyze any drive problem. He is completely informed on the nature and advantage of every type of belt. He will always recommend the practice that will be most efficient and economical for you.

GATES V-BELTS INCLUDE:—

1. *Special* Synthetic V-Belts
2. Static-Safety V-Belts
3. Cotton Cord V-Belts
4. Rayon Cord V-Belts
5. Steel Cable V-Belts

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THE GATES RUBBER COMPANY

Engineering Offices and Stocks in All Large Industrial Centers

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. . . use Wissco Card and Napper Clothing. Its clean cut staples of special steels are precision ground for keen penetration—and microscopically inspected—thus assuring perfect carding and napping. In all standard foundations; and Wissco Special Foundation which permits up to 200 lbs. more tension; eliminates stretching and blistering; assures positive pitch, long life. Glass hardened points, too. Write for literature. Wickwire Spencer Steel Co., 500 5th Ave., New York 18, N. Y. Buffalo, Chicago, San Francisco, Worcester.

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CARD AND NAPPER CLOTHING

for wool, worsted, cotton, silk, asbestos and specialties

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● Bunting Standardized Electric Motor Bearings are made to the exact design, dimensions and tolerances specified by the manufacturer of the motor. All grooves, oil holes and other details of the original specifications are provided to assure correct and trouble-free installation. Available from stock for practically all motors from 1/50 HP to 100 HP.

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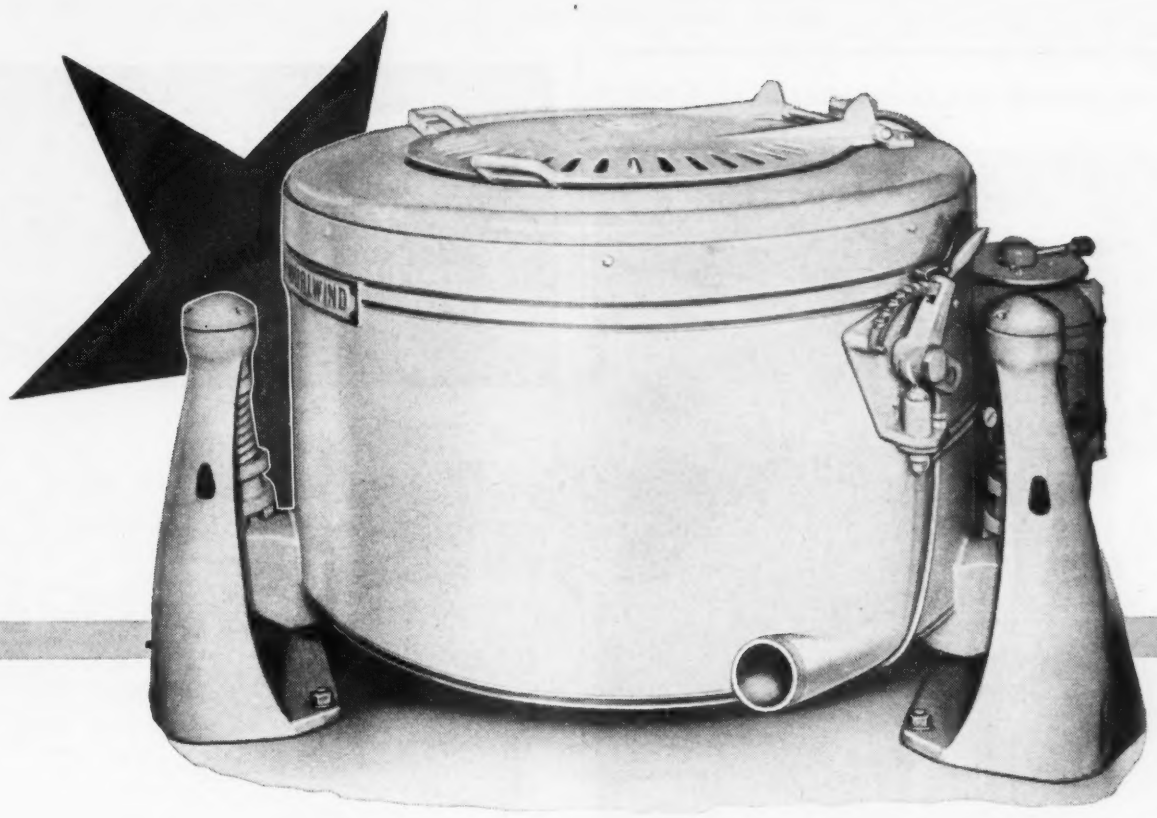
Bearings As You Like Them

- Made of a Bearing Bronze (SAE 660) provably superior to other general purpose alloys.
- *Accurately* machined and finished to stated tolerances. Bores concentric with O. D.
- Ready for immediate assembly without excessive alterations in machine tools, industrial machinery of all kinds and electric motors.
- Quickly available in a wide range of sizes, in large and small quantities, from convenient local supply sources everywhere.
- Tubular and Solid Bearing Bronze Bars precision machined on all surfaces. Solid Bars centered.
- Ask your wholesaler. Write for catalog. The Bunting Brass & Bronze Company, Toledo, Ohio . . . Warehouses in Principal Cities.

Bunting

BRONZE BUSHINGS • BEARINGS • PRECISION BRONZE BARS



A STAR PERFORMER

With a long list of successful engagements to its credit, the Fletcher "Whirlwind" can always be depended upon for top-notch performance under any and all conditions. Available with high speed or regular speed to suit every requirement, it is efficient, dependable, smooth-running—and it inherits the rugged qualities of the many Fletcher Extractors in daily operation after more than 50 years in service.

Basket comes in diameters of 40, 48 and 60 inches. Automatic hydraulic brake and timer, with "fingertip" control, can be supplied at slight extra charge. . . . For full construction details of the Fletcher "Whirlwind" with regular speed, get your copy of Bulletin 52-B. The "High Speed Whirlwind" is described in Bulletin 53. Either or both will be gladly sent you upon request.

OTHER FLETCHER PRODUCTS

include the "Victory" Loom, the "Apex" Twister and numerous additional types of extractors, narrow fabric looms, throwing machinery, spindles in the textile equipment line. We'll be glad to send you bulletins, advice on installations and keep you informed of new developments. Just write us on your letterhead.

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WHIRLWIND

THE ALL AROUND EXTRACTOR

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There Can Be No Compromise!

There can be no compromise in any business or industry where fast, accurate, reliable weighing is a factor.

The decision of the scales must be final and absolute. Fairbanks-Morse Scales are accurate. They are reliable. They have been since 1830.

Today—Fairbanks-Morse Scales are found in every business—every industry. Their accuracy is recognized as the *final and absolute decision* by buyers and sellers alike.

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Scales

"We have a long way to go and a terrible price to pay"

COLONEL ROBT. T. STEVENS

THERE HAS BEEN A NATURAL TENDENCY in American industry, including textiles, to assume that the war (or at least war production) is almost over. Furthermore, it has been correctly recognized that post-war planning is both patriotic and good business and that it represents a welcome reversal of the old American tendency never to look far enough ahead. We cannot afford, however, and it is not necessary, to let either consideration interfere with full maintenance of the war effort as long as such effort is required. What Colonel Stevens said in December is still true: "We have a long, long way to go and a terrible price to pay before victory will be ours."

EDWIN D. FOWLE
Publisher & Editor
Textile World

Keep up Production with "U.S." RING TRAVELERS

THE NE-BOW
Prevents yarn ends flying out, provides ample headroom for threading—prevents binding on ring. Note "bend inward" at top of horn.

HEAT CONTROL
for better metal—dominates "U.S." production! Carburizing and tempering ovens are electrically controlled through pyrometers for better performance.

THE BEVEL EDGE
Great pioneering "U.S." contribution to smooth spinning, twisting. Eliminating angular edges, gives uniformity of tension more even yarn, less "fly."

Higher and still higher plateaus for textile production have been set by the Army. The call is still for more yardage than the industry is producing—and "U.S." Ring Travelers can be depended on to help keep production at maximum.

Manpower is one bottleneck. "U.S." Ring Travelers, by their smooth, trouble-free performance, help prevent delays and trouble—save valuable minutes and hours of manpower which might be wasted in making repairs. If you have Ring Traveler troubles or problems—let us hear from you TODAY.

Sold under these trade names

- Bowen Round Point Travelers
- Bowen Square Point Travelers
- Bowen Improved Vertical Bronze
- Bowen Patented Bevel Edge
- Bowen Flat Oval and Round Wire Travelers
- Bowen Patented Ne-Bow Vertical
- Bowen Patented Vertical Offset

U.S. RING TRAVELER CO

AMOS M. BOWEN
President and Treasurer

PROVIDENCE RHODE ISLAND

Die castings, produced by Alcoa, offer a means of utilizing the light weight of aluminum to excellent advantage. Parts have the lightness which permits higher speed operation of equipment, makes handling easier, reduces wear and tear on machines. High quantity and quality production are maintained.

Aluminum die castings have properties suiting them to hard work; high strength, permanence of dimensions and shape, resistance to corrosion, and ability to withstand elevated temperatures. The die-casting process makes possible large quantity production of parts having uniformity and close tolerances, thin sections and smooth surfaces. As a result, Alcoa die-cast products are most economical.

Alcoa's years of experience in this kind of work help you use die castings to best advantage. Assisting in the design of parts to be die cast—building dies for that production—making millions of die castings involving every conceivable problem; this is the experience at your command when you call on Alcoa.

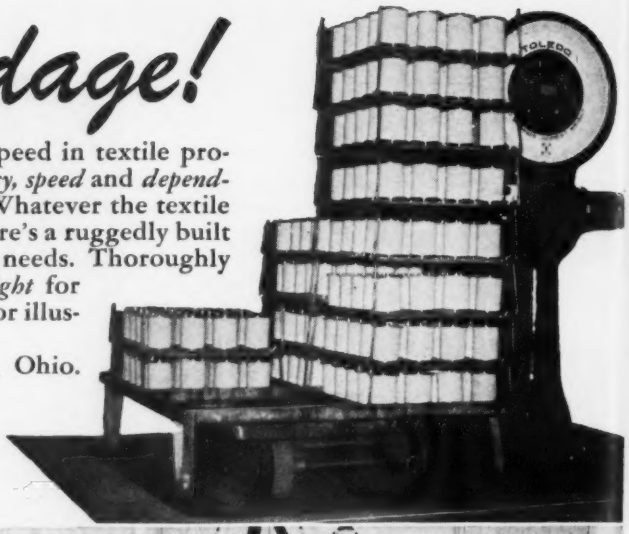
Whether you're producing war materials or planning for peacetimes, we'll gladly help you determine what Alcoa Aluminum die castings will accomplish for you. ALUMINUM COMPANY OF AMERICA, 1942 Gulf Bldg., Pittsburgh, Pa.

ALCOA ALCOA ALUMINUM **ALUMINUM**

REG. U. S. PAT. OFF.

Up your Yardage!

● Meet today's demand for top-speed in textile production... with TOLEDO *accuracy, speed* and *dependability* at every weighing point! Whatever the textile weighing job in your plant... there's a ruggedly built *Toledo* expertly designed for your needs. Thoroughly practical... Toledo builds 'em *right* for today and tomorrow! Send now for illustrated "Toledo Textile Book".
Toledo Scale Company, Toledo, Ohio.



● *Accurate* PRINTED *weights* eliminate costly human errors in reading and recording weight figures! Toledo Printweigh meets Textile production needs with unerring *printed* records and greatest speed! Prints BIG figures FAST...on thick tickets...sheets ...or strips...with extra copies.

TOLEDO *Textile* **SCALES**

TISSUE TIPS by VICTORIA

Specify VICTORIA TOILET TISSUES

Single Fold, Double Fold or Black Core—for dependable quality.
Victoria Paper Mills Co., Fulton, N.Y. Craftsmen in paper-making since 1880.

DAVIS AND FURBER

For the duration, our shops are principally engaged on war work.

We are doing our utmost, by extra effort and careful planning, to deliver essential supplies for repairs and maintenance.

MACHINE PARTS FOR REPAIRS AND MAINTENANCE
CARD CLOTHING
NAPPER CLOTHING
GARNETT WIRE
LEATHER RUBB APRONS
LEATHER CONDENSER TAPES

DAVIS & FURBER
NORTH ANDOVER, MASS.

THE ACCEPTED STANDARD

Reflections
What, after all, denotes the *true value* of any piece of milady's apparel . . . that intangible something that opens a buyer's purse? *It's Quality*, today more than ever before . . . the possession, or lack, is easily betrayed by the keen senses of the eye and hand and definitely proven by the service life it gives.
DuraBeau Finishes by Scholler, impart to Fibres and Fabrics, not only exquisite beauty, softness, spot and run resistance, . . . but miles more wear.
DuraBeau Finishes
Reg. U. S. A. & Canada

SCHOLLER BROS., INC., Mfrs. of Textile Soaps, Softeners, Oils, Finishes · Collins & Westmoreland Sts., Phila., 34, Pa. · St. Catharines, Ont., Can.

Photo Courtesy New Departure

Examine the relationship of your production to RINGS

If your spinning frames or twisters are running with worn or out-moded rings, you stand to gain 10% to 50% (the latter referring to lubricated-ring twister operation) by applying modern DIAMOND FINISH rings. Let us help you plan this repair program to add production.

WE MAKE ALL TYPES OF HOLDERS

WHITINSVILLE (MASS.)

SPINNING RING CO.

DIAMOND FINISH

Makers of Spinning and Twister Rings since 1873

Style 27

LANE BASKET TRUCKS

Smooth - Light - Durable

Designed for
All Textile, Garment, and
Many Other Industrial Plants

W. T. Lane & Bros., Inc.

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Poughkeepsie, N. Y.

COTTON WARPS

Cotton Yarn and Warps . . Single or Ply . . White or Colored . . Carded . . Combed

Novelty yarns—of cotton, worsted, wool, mohair, rayon—in all fashionable combinations and effects and in many original effects. Write for samples.

Sell Direct

Dana Warp Mills . . Westbrook, Maine

MURDOCK Bobbin Holders

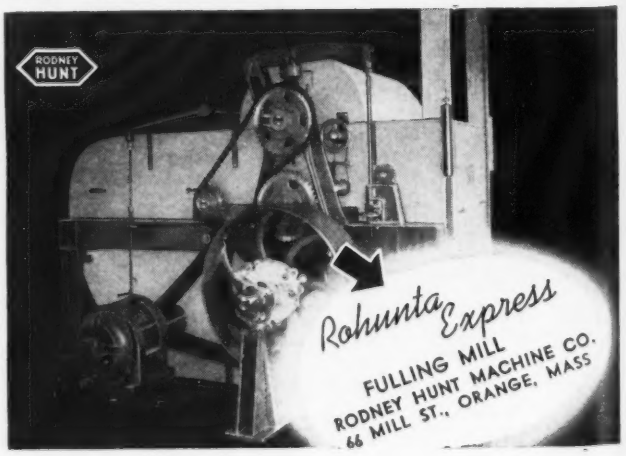
Two exclusive Features Affording Long Life:

1. Automatic-bobbin holders equipped with holding wings electrically hardened all the way through.
2. Holding wings held positively in position by skeleton washer—no sliding around.

We make holders for ¾" to 2½" bobbin heads, including large-package wood and paper bobbins, also special bobbins. Duplex holders take both automatic and non-automatic bobbins. Holders for all types of mules, frames, twisters, and winders.

MURDOCK & GEB CO., Franklin, Mass.

Manufacturers of Bobbin Holders for Over Fifty Years



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MANPOWER!

We all feel the shortage. However, our key men, each with over 26 years service, still guarantee for you the same high quality Travelers.

Let us prove this claim.

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STERLING RING TRAVELER CO.
FALL RIVER, MASS.

Ball and Roller Bearing Makers Recommend

Practically all the leading makers of ball and roller bearings, and a majority of textile machine manufacturers who use anti-friction bearings—recommend NON-FLUID OIL.

The reason for the overwhelming preference is that these concerns realize the use of NON-FLUID OIL is *insurance* — a guarantee that bearings and machines will give dependable, long-life service *at lowest maintenance cost.*

Write for instructive bulletin

New York & New Jersey Lubricant Co.
***Main Office:* 292 Madison Ave., New York, 17, N. Y.**

Southern Agent, Falls L. Thomason, Charlotte, N. C.

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TRADE MARK REGISTERED
NON-FLUID OIL
IN U.S. PAT OFFICE & FOREIGN COUNTRIES

MODERN TEXTILE LUBRICANT

Better Lubrication at Less Cost per Month

THOS. WOLSTENHOLME SONS & CO. INC.
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Yarns for all purposes

French and English Spun Worsted
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A New Chemical Treatment
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PEQUOT
SHEETS
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We're working for UNCLE SAM as well as Mrs. American Housewife!

PEQUOT MILLS
Salem, Mass.

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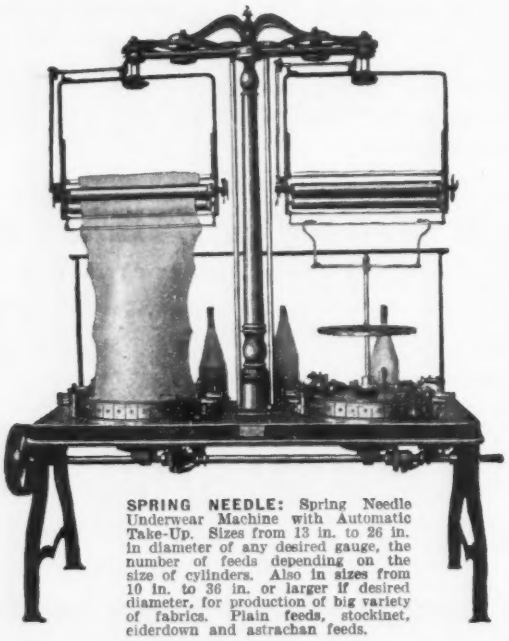
KNITTING MACHINES

meet the need for Speed—
for Quality and Low Cost



SPRING NEEDLE: Spring Needle Underwear Machine with Automatic Take-Up. Sizes from 13 in. to 26 in. in diameter of any desired gauge, the number of feeds depending on the size of cylinders. Also in sizes from 10 in. to 36 in. or larger if desired diameter, for production of big variety of fabrics. Plain feeds, stockinet, eiderdown and astrachan feeds.

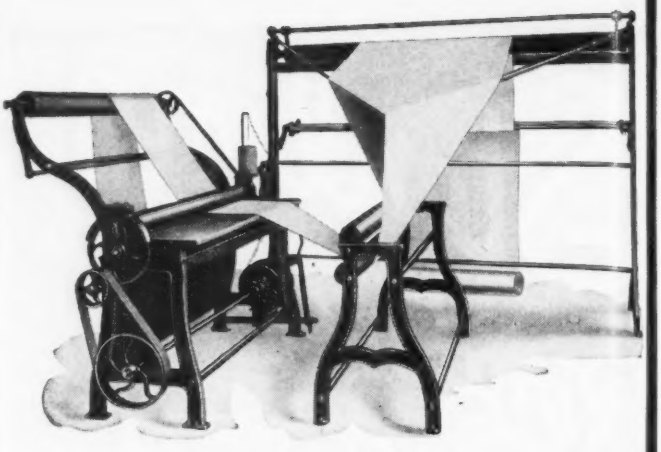
CRANE Knitting Machines meet the demands of rapidly changing patterns and styles. Their middle name is *versatility* ... plus smooth, fast running operation that eliminates expensive stops. Among their exclusive features are patented hardened Wing Burr Wheels and patented Thread Stop Motion. There's many a Knitting Mill in which batteries of Cranes are the mainstay of production.

Let us tell you why —and how . . . just ***WRITE***

1870 **CRANE** 1944

MANUFACTURING CO.
LAKEPORT, N. H.

Spring Latch Needle
KNITTING MACHINERY



No. 27—IMPROVED DOUBLING AND TACKING MACHINE

Sewing any length stitch up to 1¼ in., making a firm, strong stitch for any weight or width of goods. This machine is equipped with our latest oscillating needle bar sewing head, which makes it the fastest tacking machine on the market for tacking the selvages of woolen and worsted fabrics. For further information, send for our catalog.

DINSMORE MFG. CO.
SALEM, MASS.

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for seamless hosiery knitting

Speak for themselves

Up-To-Date Machines

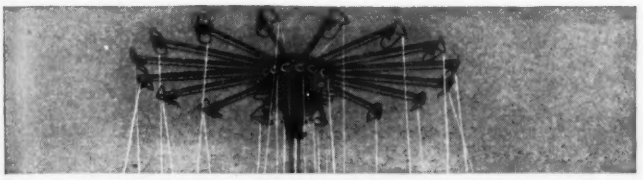
Needles

Economy Makers

ACME KNITTING MACHINE & NEEDLE CO.
FRANKLIN, N. H.

THE VALUE of FACTORY FLOOR SPACE

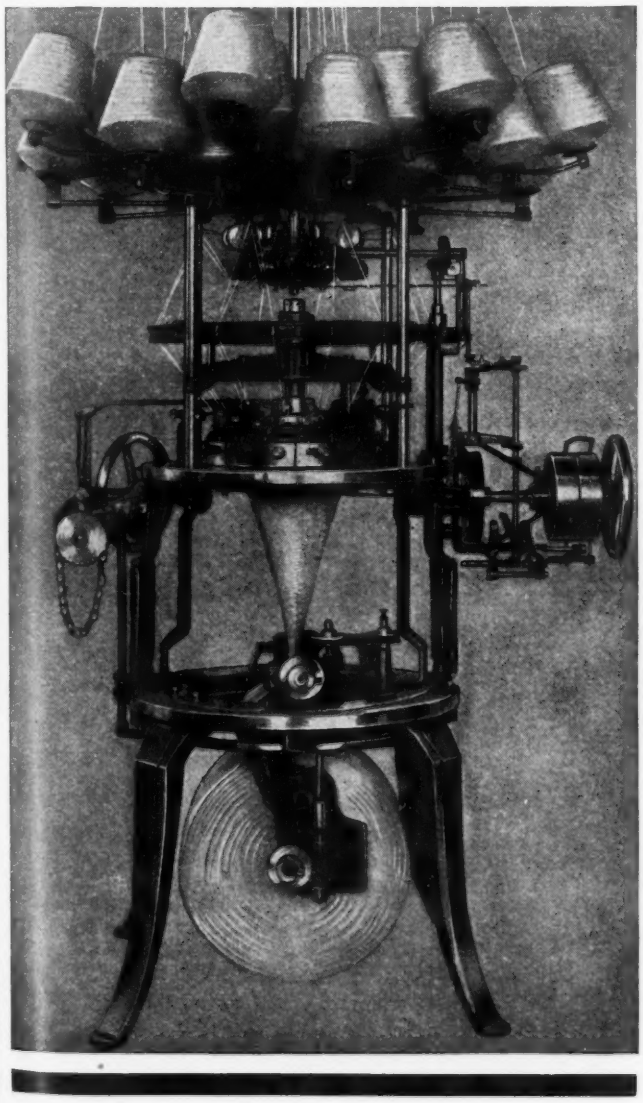
is measured by its product capacity. In accord with today's economy which does not tolerate anything less than maximum results from every element in the production picture, here's a machine that will permit you to



DOUBLE PRODUCTION

It's true;—on the very space, not one inch more, that is now occupied by your 8-feed machines—you can put this

WILDMAN MULTIPLE FEED RIB MACHINE



and, with it's 16 feeds it will produce twice as much . . . in the same time . . . with the same man hours . . . and use only 30% more power.

Such arithmetic demands attention, particularly when other advantages are considered such as trouble-free operation, a greatly improved and more uniform product, and many others that will interest you. Write for complete details.

WILDMAN

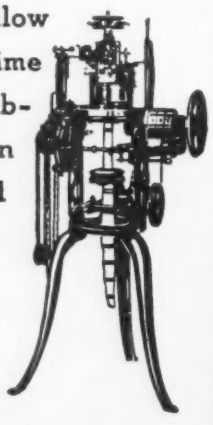
MFG. CO., NORRISTOWN, PA.

For
AMERICA
throw YOUR SCRAP
into the Fight . . .

IN TIME OF WAR

PREPARE FOR Peace

WE are here to supply what the country needs most—in War, or in Peace. • Right now —Uncle Sam says— "Build for War". When he says— "Build for Peace" – Brinton will follow the command. • In the meantime think about your Peace Problems and in terms of Brinton Knitting Machines. • We shall be glad to figure with you now, for peace-time requirements.



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H. BRINTON CO.

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Machine and Hand Knitting

Yarns

[French-Bradford]

for

BATHING SUITS
OUTERWEAR
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Complete color assortments

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We offer a complete line of high quality braiders for round, tubular and flat braids.

Information gladly furnished on request.

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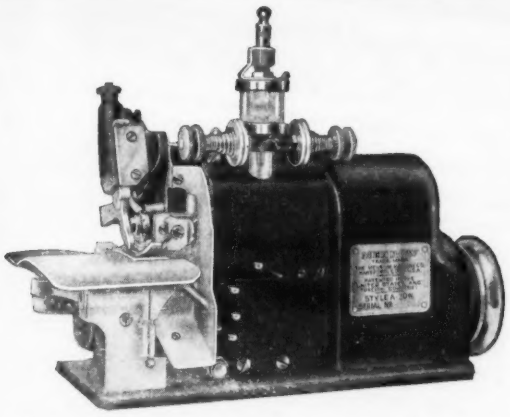
Sheet Metal Specialties to Order

NEW BRUNSWICK NEW JERSEY



Merrow Class A Machines, illustrated, have made possible quality production, high speed and low operating costs to a degree greater than ever before. They are easy to handle, simple to adjust, sturdy in design, accurate in workmanship and readily adapted to many kinds of work. Let us or our distributor nearest you demonstrate the work of these machines on samples of your own fabric.

TRADE MARK
MERROW HIGH SPEED

OVEREDGING, OVERSEAMING AND HEMMING MACHINES

Produce Federal Specification Stitch
Types 501, 502, 503, 504 and 505

WAR WORK DEMANDS

Quality Results—High Production
Convenient Handling
Minimum Time-Out for Adjustment
or Repair—Low Upkeep Costs

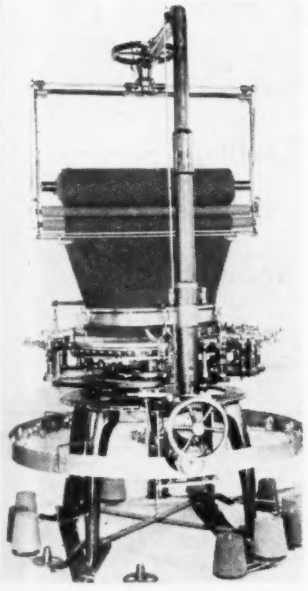
Obtain Maximum Quality Production by Using a Machine Suitably Arranged for Your Work—Our Distributors or Our Direct Representatives Are on Call to Advise You Suitable Machine Arrangements for Various War Work and Proper Care and Operation of Machine.

ESTABLISHED 1838 INCORPORATED 1894

THE MERROW MACHINE COMPANY

STARTING ITS SECOND CENTURY

2803 LAUREL STREET HARTFORD 6, CONN., U. S. A.



Model S-1
Single Head Spring
Needle Knitting Machine

Electrically driven by V-belt simplified motor drive. See its many improvements.

Two New Knitting Machines To LOWER Your COSTS On POST-WAR Fabrics

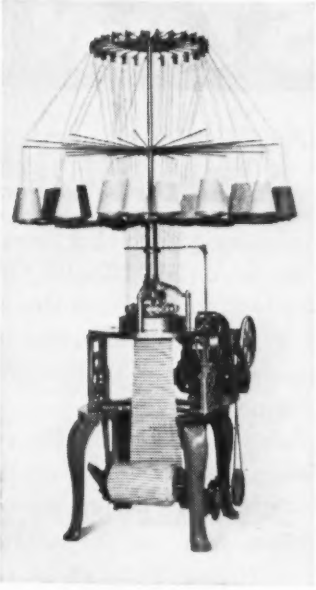
Primarily designed to SAVE on your manufacturing COSTS—this NEW Model S-1 Head Spring Needle Machine is producing 100 yds. of overcoating material per 8-hour day, using 6 feeds.

And—it will run on the finest underwear just as easily.

See the ease of accessibility on Model B-15 Multiple-Feed Latch Needle Machine shown opposite. Operator may keep close watch on production. This promotes better quality fabrics.

Write for full information on the revolutionary improvements in both of these knitting machines.

For Nearly 100 years Builders of Knitting Machines.



Model B-15
Multiple Feed Latch
Needle Knitting Machine

Made in all sizes from 9" with 20 feeds, up to 24" with 52 feeds. Gauges start at 42 gauge, 28 needles per inch and coarser.

TOMPKINS BROS. CO., Inc., 622 Oneida St., Syracuse, N. Y.

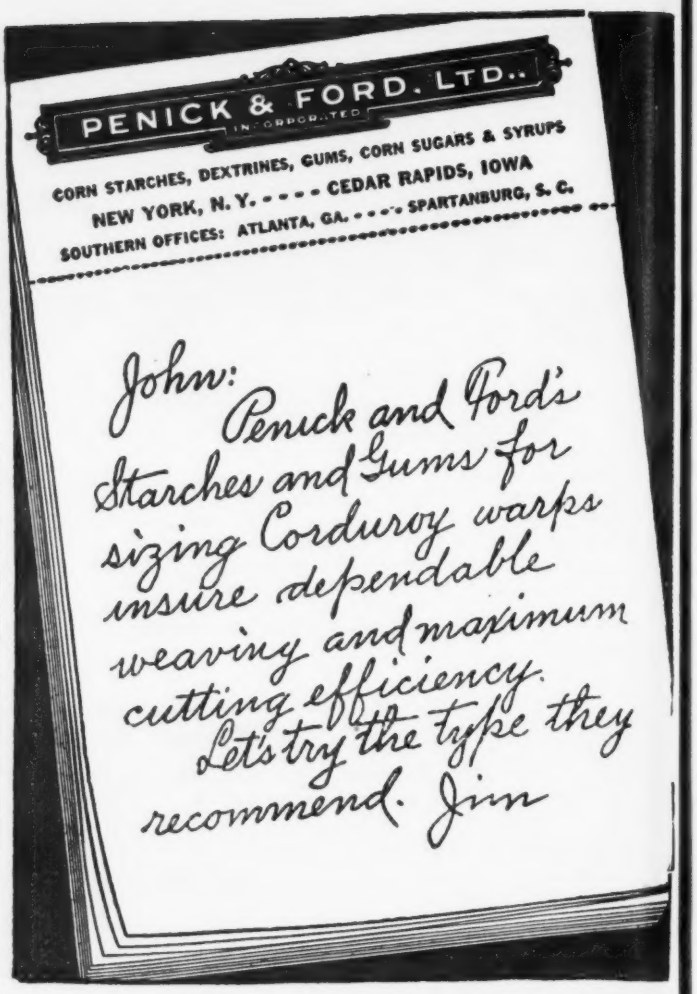
THE STANDARD DE-SIZING AGENT

RAPIDASE

Dependable, speedy and economical de-sizing . . . Our technical staff always at your service.

● *for cottons rayons and mixed goods*

WALLERSTEIN CO., INC.
180 MADISON AVENUE, NEW YORK


PENICK & FORD, LTD., INCORPORATED
CORN STARCHES, DEXTRINES, GUMS, CORN SUGARS & SYRUPS
NEW YORK, N. Y. - - - - CEDAR RAPIDS, IOWA
SOUTHERN OFFICES: ATLANTA, GA. - - - - SPARTANBURG, S. C.
John: Penick and Ford's Starches and Gums for sizing Corduroy warps insure dependable weaving and maximum cutting efficiency. Let's try the type they recommend. Jim

STANDARD SILICATES

KIER BOILING

For better whites and level results, use a pound of STANDARD Grade 40 Silicate with each 3 to 5 lbs. of caustic in your kier boiling formula. Troublesome stains are eliminated and scarce chlorine is saved.

Ask the STANDARD service staff about grey sour-silicate kier boiling procedure for better whites with less bleach.

ALKALI

DIAMOND ALKALI COMPANY
STANDARD SILICATE DIVISION
GENERAL OFFICES: PITTSBURGH, PENNSYLVANIA
Plants at CINCINNATI · JERSEY CITY · LOCKPORT, N. Y.
MARSEILLES, ILL. · DALLAS, TEXAS

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MANUFACTURERS OF
Textile, Laundry
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WRITE US FOR SAMPLES AND QUOTATIONS

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TENTERING and DRYING MACHINERY

TRAVELERS TAILORED FOR TO-DAY!

Only the most modern methods are employed in the manufacture of Dary Ring Travelers.

It is these methods plus the use of specially designed tools that result in superior ring travelers . . . travelers tailored for to-day's spinning and twisting tasks.

Learn more about Dary's "tailored" travelers by getting acquainted with The Dary Representative nearest you TO-DAY!

PROCESSED
SYMBOL OF
SUPERIORITY

THE DARY RING TRAVELER CO.
TAUNTON, MASSACHUSETTS
JOHN E. HUMPHRIES, BOX 843, GREENVILLE, S. C.
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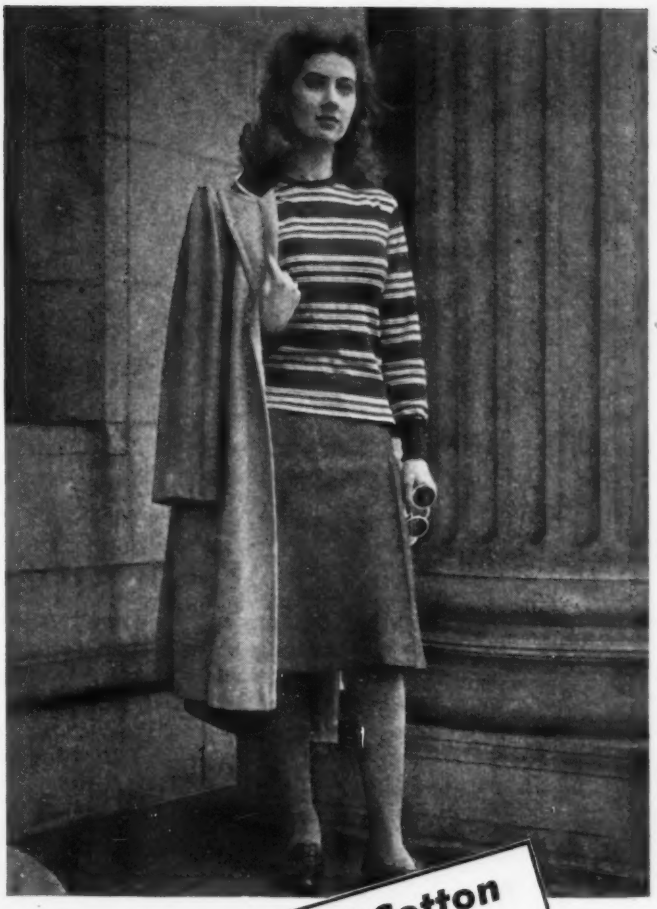


Polo Shirts of Cotton Packaged Dyed By GLOBE . . .

One of the interesting new style trends among younger women is the use of polo shirts in colors to go with sport skirts or slacks on campus, street, or athletic field.

These polo shirts are also popularly used under heavy coats or in steam heated offices because they do not cause perspiration, as does a woolen shirt. They have the further advantage of requiring only washing. It is not necessary to iron them.

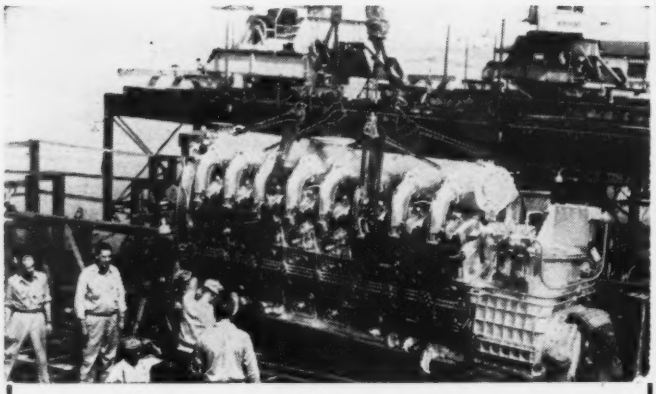
For package dyeing of yarns for polo shirts—

"You can rely on GLOBE"

We are also dyers, bleachers, and mercerizers of cotton skein yarns and warps. Dyers of rayon, spun rayon, nylon, and novelty yarns.

1865 **Globe DYE WORKS CO.** 1944

FRANKFORD, PHILA. 24, PA.



"Safety-Pull" hoists spotting 2,000 horsepower deisel engine

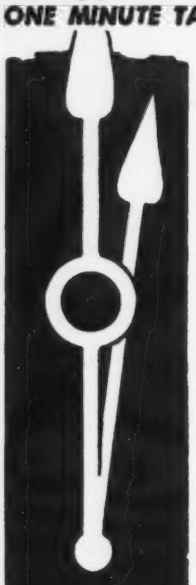
The same SIMPLE OPERATION in all sizes of "SAFETY-PULL" RATCHET LEVER HOISTS

Side lever control for postive "up or down". A neutral position for safety control. Reversible handle permits the operating of hoist in any position. Safety stops prevents handle from spinning. Nine models from ¾ to 15 tons.

Write today for catalog JG6

COFFING HOIST CO.
DANVILLE, ILLINOIS

ONE MINUTE TALKS ON



Faster, Easier Way To Clean Loom Parts

Mills have found that heddles, reeds, drop wires and other loom parts are hard to replace . . . must last longer. To insure continued service, therefore, these vital parts must be kept clean . . . free from deposits that cause corrosion and pitting.

That's why more and more mills are turning to the Oakite way to expedite this important maintenance job. By using the recommended Oakite material, spinning oils, dye and gum deposits are easily, THOROUGHLY removed . . . and in far shorter time than by former methods.

FREE Digest covering this and 38 other maintenance jobs readily available. Send for it TODAY!

OAKITE PRODUCTS, INC.
42 Thames Street, New York, 6, N. Y.
Technical Service Representatives Located In All Principal Cities of the United States and Canada

OAKITE *Specialized* **CLEANING**
MATERIALS & METHODS FOR EVERY CLEANING REQUIREMENT

ARMSTRONG-BRAY
STEELGRIP
FLEXIBLE BELT LACING

ARMSTRONG - BRAY
STEELGRIP
Flexible Belt Lacing

8 sizes boxed or in long lengths for wide conveyor belts. Best for rubber and fabric belts because it compresses belt ends and prevents fraying. Applied in a few minutes with a hammer. 2-piece hinged rocker pins. Also, WIREGRIP Belt Hooks that fit any lacing machine. Immediate delivery on both types.

Write for Circulars

ARMSTRONG-BRAY & CO.
"The Belt Lacing People"
5340 Northwest Highway
Chicago, 30, U. S. A.

WE'VE LEARNED A LOT IN OUR 50 YEARS!

50 years of specialized experience in producing tanks and tubs for the textile industry *has taught us some things that will be valuable to you!*

Let us tell you about our complete Caldwell service, which includes Stainless Steel-lined tanks and tubs—round, rectangular and special shapes. *Catalog on request.*

W. E. CALDWELL CO.
Incorporated
2060 Brook St. Louisville, Ky.

Caldwell TANKS AND TOWERS

ALL STEEL
ECONOMY BALING PRESSES
ALL SIZES FOR ALL PURPOSES
LARGEST LINE BUILT IN U.S.A.
ECONOMY BALER CO., DEPT. J ANN ARBOR, MICH., U.S.A.

REPRESENTATIVES:
New York Office: 100 Gold St.
Philadelphia Office: Drexel Bldg.
Terrell Machine Co., 1200 No. Church St., Charlotte, N. C.
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Other Sales and Service Branches in most Important Cities.

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POSITIONS WANTED (full or part-time salaried employment only), ½ above rates.

PROPOSALS, 50 cents a line an insertion.

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BOX NUMBERS in care of any of our New York, Chicago or San Francisco offices count 10 words additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

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The advertising rate is $5.75 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. T.W.

NEW ADVERTISEMENTS received by 10 A. M. April 27th will appear in the May issue, subject to limitations of space available.

Over Forty-five Years of Dependable and Confidential EMPLOYMENT SERVICE

for textile mills, converters and selling houses requiring managers, superintendents, stylers, designers, salesmen, overseers, second hands, fixers, etc. 'Phone, wire or write us your personnel requirements.

CHARLES P. RAYMOND SERVICE, Inc.

Phone: Liberty 6547 — 294 WASHINGTON STREET, BOSTON 8, MASS.

POSITION VACANT

MAN wanted for carding and spinning overseer. State experience, salary expected, etc. Barnett Woolen Mills, 520 S. Muskego Ave., Milwaukee 4, Wisconsin.

POSITIONS WANTED

EXPERT FINISHER of woolen fabrics. Textile School of Cottons graduate; now employed in Chile by a leading manufacturer. Seeks position in U. S. Chilean, 37 years old, single. PW-802, Textile World, 330 W. 42nd St., New York 18, N. Y.

MASTER MECHANIC broad experience in cotton and woolen textile. From machinist to superintendent on maintenance of large industrial plants. Want definite post war position. High grade man. Attached to U. S. Navy Mechanical laboratory. Available in two weeks. Age 54. PW-825, Textile World, 330 W. 42nd St., New York 18, N. Y.

NYLON, RAYON, SILK THROWSTER. Married, age 38, desires position as plant manager or superintendent. Practical and technical experience on hosiery tram. Can handle help and fully experienced mechanically with all throwing machinery. Location no object. Now employed but wish to make change. PW-826, Textile World, 330 W. 42nd St., New York 18, N. Y.

MILL MAN 45 years of age. 25 years manufacturing experience on all kinds of woolen and worsted fabrics, preferably women's wear. Highly skilled in designing and with 16 years experience in managing production. Intends to change his present position. Prefers personal interview. PW-827, Textile World, 330 W. 42nd St., New York 18, N. Y.

MILL MANAGER desires position, 20 years experience on cotton yarns. Know both office and mill. PW-828, Textile World, 330 W. 42nd St., New York 18, N. Y.

(Continued on page 256)

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for

MANUFACTURERS AND USERS OF FIBERS AND TEXTILE PRODUCTS ON FIBERS PRODUCTS PROCESSES ENGINEERING

Box 37, North Scituate, Rhode Island — P. O. Box 494, Newark, Ohio

(POSITION VACANT)

Wonderful Opportunity for Right Man as

ASSISTANT SUPERINTENDENT & DESIGNER

In moderate size up-to-date New England woolen mill making better grade plain and fancy women's wear. The right man will be from 30 to 50 years old and will have a background of experience in the manufacture of better grade fabrics in a well known mill or mills. Salary will be in accord with ability and background. Give full qualifications in first letter.

P-814, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

Assistant Plant Manager

by well known rayon manufacturer not engaged in war work. Permanent position with splendid opportunity for future. Applicants should be graduate chemical engineers and must have broad experience as successful operating executives. Rayon experience desirable but not a prerequisite. Give complete details of education, training and experience, references, draft status, availability, salary desired and a recent photograph. All replies shall be treated confidentially.

P-815, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

SUPERINTENDENT

Eastern Pennsylvania cotton rug manufacturer offers excellent opportunity to the right man: Knowledge sewing machine operation desirable; weaving experience and knowledge yarns essential. Must have ability handle personnel successfully. Should be ambitious, aggressive, resourceful. State full details, age, draft status, education, experience, starting salary desired.

P-818, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

FIXERS

for Scott & Williams
and
Acme
Hosiery Knitting Machines
Steady Employment

P-813, Textile World
330 W. 42nd St., New York 18, N. Y.

WANTED

PRODUCTION MANAGER BRAIDED RUG MILL

Large eastern cotton rug manufacturer has opening in organization for production manager in braided rug division; excellent future for right man who must be conversant with all phases of business including row materials, labor training, styling. State full details experience, age, compensation desired, etc. All replies will be held strictly confidential.

P-819, Textile World
330 West 42nd St., New York 18, N. Y.

(AVAILABLE)

F F Fixer Foreman or Asst. Superintendent

17 years experience in knitting dept. Steady conscientious worker desires permanent connection with reliable concern.

PW-823, Textile World
330 W. 42nd St., New York 18, N. Y.

CONNECTION WANTED

have to offer exceptional experience in dyeing, finishing and general manufacturing. For the past 10 years engaged in consulting work. Desire connection with large concern or group of mills in executive capacity or as consultant. Will also consider connection outside the USA. Age 43, married, American citizen, thorough technical training.

PW-812, Textile World
330 W. 42nd St., New York 18, N. Y.

(Additional Employment and Wanted Advertising on page 256)

Where would YOU be if the War ended TODAY?

...with cash in hand?

...or holding the bag?

YES—where would you stand—you mill men holding idle textile equipment, waiting for bigger demand and better prices?

Conditions in the textile field can change overnight! *The War's not going to last forever* . . . and the textile equipment you're deliberately or complacently holding now—equipment that ◄MLC► stands ready to take off your hands at a good "fair-to-everybody" price—will be begging for buyers. There it will be, your mill becoming a "storage warehouse" for equipment—a dead loss of floor space, money and productive capacity.

Think this thing through! Somebody badly WANTS your idle equipment NOW . . . a single piece or an entire mill. ◄MLC► has the customers and ◄MLC► stands ready to convert it into good hard cash at once . . . cash you can employ to modernize, convert, maintain your mill, or other profitable uses.

Don't wait! Don't gamble with the future. Don't get caught short with what you can get a "fair-to-everybody" price for—NOW. Cash in now through ◄MLC►—we'll take care of all removal details.

●*Here are a few of the requests we have before us TODAY—*

We have customers waiting for: Entire Woolen Mills, 3-card sets up—Cotton Mills from 10,000 spindles up. Wanted equipment includes Cards of all kinds for cotton, wool, jute; Picking Machines for all kinds of textile fibres; Spinners; Twisters, Looms, etc., etc., for any textile operation. This is just a cross-section—we have calls for ALL kinds of textile machinery from A to Z. Tell us what you have to sell—and get money for it immediately. Send us your list—one item, a thousand, or a whole mill—today.

Sh-sh-sh

CONFIDENTIALLY—we'll keep your secret in strict confidence if you are thinking of selling your mill. No news will get around or leak out. All negotiations and inquiries conducted to protect your interests, without publicity. Take it up with ◄MLC►—for results with no regrets!

—and on the other hand...

Dont tear your hair

MLC will get you the equipment you need!

Are you struggling with stepped-up war orders? Are you caught in the manpower shortage? Converting to other lines of production? Figuring out how to replace worn-out equipment, make plant repairs? Don't tear your hair—just wire, or write, or call on ◄MLC► and get what you want quickly! We have had more than 18 years of experience in the textile field; and we either have, or can quickly get, almost any item needed—repair parts to complete mills! For prompt, reliable Service that saves you time and makes and saves you money—contact ◄MLC►—

"from a CASE to a CARLOAD"—or a Complete Mill!

Partial List of Stock Items Ready for Immediate Delivery

2—46" Button Breakers
1—52" Button Breaker
1—Rotary Cloth Cutter, 5" knife
1—46" Windle Doubler
1—36" Doubling & Winding Machine
5—Dblg., Boarding & Winding Machines
1—28" Stick Klauder Weldon Skein Dyeing Machine
1—36" Empire Extractor
1—42" Fletcher copper basket, top motor driven extractor
1—40" Elliott & Hall Folding Machines
4—42" Elliott & Hall Folding Machines
4—46" Elliott & Hall Folding Machines
1—6 Delv. Whitin Drawing Frame with 12" coiler
2—Schultz Fulling Mills
8—1200 h. Halton Jacquards, 9" lift
58—38" Model E Draper Auto. Looms
120—40" Draper Modified "D" Looms for 20 harness work (double index dobbies) 45½" reed space, belt driven
60—42" Modified "E" Draper with roller tops, 47½" reed space, belt driven
19—44" Model D Modified Draper Auto. Looms
50—52" C & K 4 x 1 Auto Looms, 56½ R.S. 25 Har. Belt Driven
100—76" Draper Modified "D" Lacey top looms, 82" reed space, belt driven
96—82" C & K 4x4 25 Harness motor driven woolen looms
6—82" C&K (4x4) 25 Harness Woolen Looms, Belt Driven
1—66" Voelker Cloth Press
1—60" C & M Plush Shear
2—66" C & M 2-Blade Shears

COMBERS
1—Complete Set including:
1—Whitin Ribbon Lapper
1—Whitin Sliver Lapper
8—Whitin Model "C" Combers

CALENDER
1—42" Butterworth 3-Roll Friction and Rolling Calender, motor driven

2—66" P & W 2-Blade Shears
1—72" Montsford 2-blade Shear
1—Schulze 106" Double Shear
3—204 Sp. Lowell 2¼" Ring Band dr. Spinners
8—264 Sp. Whitin Spinners 1¾ R 3" Gge.
8—120 Spindle Draper Spoolers with Foster Tensions and McCall Guides
1—60" C & M Tiger
4—20 Spindle Universal #90 Filling Bobbin Winders, bottom supply
1—100 Spindle Foster #12 Cone Winder, bottom supply
3—110 Spindle Hopedale 3" Ring Twisters
1—56 Spindle Draper 2½" Ring, 3½" Gge Twister
1—Barber Coleman Auto. Warp Tying Mach., size 4-E.
1—44" Simplex Winding & Measuring Mach. Mtr. dr.
2—60" Edge Stenciling & Winding Machines
1—Monel Lined Tank Wood Frame (I.D.) 8'L x 2'6"W x 2'2¾"D

MACHINERY LIQUIDATING COMPANY

OPA REGISTRATION NUMBER 789

EST. MLC 1923

31-33 West 42nd Street NEW YORK 18, N. Y.

DOMESTIC TELEPHONE PEnnsylvania 6-8014 EXPORT

DEALERS IN TEXTILE MACHINERY, ACCESSORIES AND MILL SUPPLIES

NORMAN M. McDOWELL

342 E. 142 St. ASSOCIATES Bronx, N. Y.

REBUILT & USED *BUY WITH CONFIDENCE* *MELROSE 5-1772-3*

EXCEPTIONAL VALUES - - - - PROMPT DELIVERY

6—TAPE CONDENSERS for 60" and 72" Cards.
10—MULES 1⅞" Gauge 480 Spindle Units.
2—WOOL SPINNING FRAMES 4" Gauge
1—CALENDER 5 Bowl 47" MYcock Expander and Chasing rolls.
1—CALENDER FRICTION 42" 3 roll.
1—DOUBLING & FOLDING Unit 60" folds 18" to 40".
3—DOUBLERS 42" to 60" with clocks.
1—GRINDER, Napper rolls up to 86".
2—EXTRACTORS 48" & 60" Mtr. Driven.
1—JIGG 60" Copper Lined.
2—LOOP DRYERS, Unit Heaters.
1—NAPPER S.A. 90" 14 rolls.
1—NAPPER KNITGOODS 72" D.A. 20 rolls.
4—NAPPERS 80" & 84" D.A. 24 & 36 Rolls.
1—PALMER 60"x60" Blanket & Dry Cans.
2—QUETCHES 44" and 50" 3 roll units.
2—ROTARY STEAM PRESSES 66½" & 80".
1—SCOURING UNIT, Yarn 3 Bowl.
5—SQUEEZE SETS 40" to 66" widths.
5—SEWING MACHINES Rotary Foot Power.
4—SHEARS 36" to 88" Single & Double Blade.
1—TUBER 60" with measuring clock.
6—TWISTERS Novelty 2½" Ring.
4—WASHERS 6, 8 and 12 String.

Miscellaneous: Bristle Brushes, Brass & Wood Rolls, Rubber Rolls, Gears, Pulleys Etc.

ONLY A FEW OF THE MANY UNITS AVAILABLE. SEND FOR OUR COMPLETE CATALOG. LIST YOUR SURPLUS EQUIPMENT WITH US.

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FROM OUR OWN STOCK "HARD TO FIND MACHINERY":

2—50' W & J Tenter Frames 50" wide
2—40' W & J Tenter Frames 60" wide
1—30' W & J Tenter Frame 60" wide
1—50" P & W Rayon Semi Decator
1—90" E & H Hooker
2—50" Sjostrom Conditioners
1—90' W & J Tenter Frame 52" wide
1—3 Bowl Hydraulic Calender Friction 50" wide
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60" Bramwell Card Feed
20" Gerry Picker
28" F. Franke & Co. Picker
Pin and Pinless Warpers, any size
#50 Universal Winders, rebuilt to your order
#90 Universal Winders, rebuilt to your order
#180 Universal Super Cone Winders 8x8
600 hook, Royle, piano type Card Cutters
0. Lever Chenille Cutters
82" and 92" C & K 4x4 box, 25 harn Looms
4x6 wooden Spools
4½x6" wooden Spools
2⅞x3⅝" Sipp Spools
78" C.&M., 2 cyl. Brush with Steamer
66" Sjostrom Cloth Finishing Machine
48" Fletcher Extractor, motor driven
82" Woonsocket, 20 roll, D.A. Nappers
66" heavy duty, Jumbo type, Gessner Press
72" Century type Gessner Press
80" Century type Gessner Press
82" double bed, Voelker Press
66" E. Gessner Press
66" Model A, 2 cyl. Shears
66" Model B, 2 cyl. Shear
66" 2 cyl. C & M Shear
66" P & W Plush Shear
66" C & M Plush Shear
76" 2-burner, gas, C & M Singer
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50,000—4¾"x6½" trav. SPOOLS, heads ¾" thick, metal bound, heavy construction. For TIRE or COARSE Yarn.
2—D&F Mules, 2½" gauge, 260 spd., 10¾" above collar board.
1—Tolhurst 48" Extractor, copper basket tinned, overhead belt drive with motor driven loader.
4—S.L. 12x6 Slubbers, 68 spindles each.
1—50 HP Westinghouse DC Motor, 750 RPM, 230 Volts.
2—55 KW Westinghouse Generators, 125 V., DC, 440 Amps., 850 RPM.

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KNITTERS - RIBBERS - LOOPERS
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All types of hosiery mill equipment on hand.
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River Works, Andover, Mass.

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17—355, 528, 730 & 1100 ft. Cap.

TANKS ON TOWERS

25,000, 50,000, 70,000 & 100,000 Gal. Cap.
—Towers 25 to 156 ft. high.

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GAINES TEXTILE MACHINERY CO.

Dealers in Rebuilt and Guaranteed Yarn Winding and Spinning Machinery

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30" LOOMS

76—Draper 30" Model E used looms in good condition. Complete with Lacey top motions, pulleys, shafting, beams, etc. Located in South.

AMES BAG CO.
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"You'll lose no TIME— and you'll save MONEY— GET IT FROM 'CONSOLIDATED'"

WHEN the conference discusses today's problems . . . conversion . . . change-overs . . . replacing worn machines . . . disposing of idle equipment . . . the ONE time-and-money-saving answer is

"CONSOLIDATED"

PRINTING MACHINES
10—R. B. & F. 1 to 10 color Print Machines, 40" to 64" wide, complete.

AGERS
1—Cast Iron Ager, 18' x 60".
1—Cast Iron Ager, 12' x 66".
1—30' Steel Ager.
1—Haveg Patch Ager.

KETTLES
20—Textile Copper Steam Jacketed Color Kettles, tilting type, agitated, 24 to 100 gallons capacity.

CAN DRYERS
450—Dry Cans, 50" to 108" face, 23" to 84" dia.

FULLING MILLS
6—Rodney-Hunt Fulling Mills, gear drive.
2—Single Line Fulling Mills, rubber rolls.

OPEN WASHERS
1—Continuous Full Width Washer, consisting of 3 sections, 4 nips, each section, 66".
1—60" Continuous Boil-Off Machine, steel tanks.
1—Van Vlaanderen 18-compartment Print Washer.
1—Van Vlaanderen 60" Open Washer.
1—Textile 8-compartment Open Washer.

ROPE SOAPERS
1—Van Vlaanderen Continuous Square Formation Washer.

DYE BECKS
25—Butterworth, Morrison & V.V. 6' & 8' Dye Becks, stainless steel and wood tubs.
10—Morrison & V.V. Dye Becks.

BLEACHING
8—Bleaching 4-5 ton Kiers, vomit type.
1—5-ton Kier, circulating type.
2—Lincoln 2-Roll Rope Squeeze Rolls.

SCOURING & DYEING MACHINES
2—Haveg Dye, or Washing Machines, completely enclosed, 51" wide.
1—Sargent 3-Bowel Skein Scouring Machine.
3—K'auder-Weldon Skein Dyeing Machines.
1—Obermaier 400# Package Dyeing Machine.
1—Sargent 4-Bowl Wool Scouring Washer, 48".
1—Rodney Hunt 7-String Dyeing Machine.
1—Obermaier Combination Package & Rawstock Dyeing Machine.

DYE JIGGS
6—Dye Jiggs, 54" rubber covered rolls
1—Battery 4-Butterworth stainless steel lined Dye Jiggs, 45".
1—Battery 4-Morrison stainless steel lined Dye Jiggs, 50", tilting expanders.

EXTRACTORS
4—V.V. & Tolhurst 60" rubber & copper basket Extractors.
10—V.V. Fletcher & Tolhurst 40", 44", 48" Extractors, copper lined.
12—Tolhurst, American Laundry, Adams, Troy & Bach Copper Lined Extractor, 17", 20", 26", 28" & 32".

CALENDERS
2—V.V. Ball bearing Calenders, 50" & 60".
2—McCreary 50" & 54" Knit Goods Calenders.
1—Perkins 3-roll Hydraulic Calenders.

SHEARS
3—P. & W. Double Blade Shears, 66½" with list saving device.
1—P. & W. 3-Blade Shear, 60½" with list saving device.

DECATERS
1—Gessner Full Decating Machine, 72" wide.
2—Gessner semi-decating machines, 50" & 72" wide.

DRYERS
4—National and P.E.S. Loop Dryers, 28', 30', 33' & 65' lg.
1—Phila. Dry Mach. Co. Hurricane Continuous Skein Dryer.
1—P. & S. 72" Raw Stock Dryer, Automatic Feed.
1—Phila. Raw Stock Dryer, 48" Automatic Feeder.
1—P. & S. 36' Loop Dryer, 90" poles. Rebuilt by National. Equipped with high speed booster fans, airfins.
1—Single Truck Dryer.
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NAPPERS
8—D & F, Woonsocker & P & W Nappers, 60" to 90".
1—Gessner 20-Roll 66" Double Acting Napper.
1—60" Box Napper.
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TENTER FRAMES
1—W. & J. 95' x 50" Swing Tenter Frame.
1—30' Swing Tenter Frame.
1—Heathcote Pin Tenter Frame.
2—25' Pin Tenters.

PALMER QUETCHES
3—Morrison & V.V. 50", 60" & 72" Palmer Quetch Units.
1—V.V. Palmer Quetch Unit, low type, 65" wide.

PADDERS, MANGLES, QUETCHES
4—Textile 50" 2-Roll Dye Padders.
5—Butterworth 50" 2-Roll Starch Mangles.
2—Textile 80" 2-Roll Mangles.
8—Butterworth & Morrison 2 & 3-Roll Quetches, 50", 60", 64" & 72" wide.
5—Quetches, 2 & 3-Roll, 36-72" wide.
1—James Hunter 50" Water Mangle.

SINGEING MACHINE
1—80" 2-Burner Singeing Machine.

STEAMING & FINISHING MACHINES
3—Steaming Machines for Tubular Goods.
2—C & M Finishing Machines for Tubular Goods.

BUTTON BREAKERS
3—Morrison & V.V. Button Breakers, 50", 60", 72" brass rolls.

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2—Sjostrom Cooling & Conditioning Machines.

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4—Van Vlaanderen 50" & 55" Beamers.
20—50" & 60" Batchers.

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2—Examining Machines for Tubular Goods.

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4—Elliot & Hall Flat Folders, 42" to 60".

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5—Merrow 60ABB & 60D3B on tracks.
4—Merrow 60ABB & 60D3B on portable stands
250—Metropolitan, Union Special and Singer.

TRUCKS
100—Four Wheel Flat Body Creel Trucks.

PUMPS
2—Deep Well Pumps.

PRESSES
1—Logemann All Steel Paper Baler.
2—Schiem & Economy All Steel Presses.
1—Gessner 72" Wool Press.

LOOMS
20—82", 4 x 1 Auto. Looms.
25—100", 4 x 4 Blanket Looms.
100—Crompton & Knowles 50" Rayon Looms.
94—Draper Automatic Model E 44" Looms.

WORSTED & COTTON SPINNING FRAMES
24—Ring Spinning Frames, 160 spindles, 8½" pitch, 8" travers, 1¾" ring, 4" front roll.
14—Lowell Cotton Spinning Frames, 3" gauge, 2" ring.

COUNTERS
250—Waltham Pick Counters.

WATER SOFTENERS
1—Permutit Water Softener, 103" hg, 63" wd.
2—10 x 10 Vertical Softeners, Zeolite.
2—Pressure Sand Filters, 8" dia., x 20' lg, complete with pipe and valves.

MISCELLANEOUS
Skein Reeler. Universal Tubers & Winders, Gas Boiler, Scutchers, Expanders, Sewing Machines, Trucks, Generator Sets, Motors, Rubber Lined Tanks, Modine Heaters, Exhaust Fans, Pleaters, Mandrils, Doctor Blades, Gears, Lathes, Portable Agitaters, Accumulators, Wood Shells, Weidemann Control Unit, etc.

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SUPPLYING TEXTILE EQUIPMENT FOR THE
DYEING BLEACHING WEAVING
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of
RAYON COTTON WOOL
WOOL FABRICS and WORSTEDS

ATTACK — KEEP BUYING WAR BONDS

FOR SALE:

10 F. TONNAR HEAVY DUTY DOUBLE SHUTTLE VELVET LOOMS

WITH KNIFE MOTION FULLY DRESSED READY TO RUN. 2 x 2 box 56" between swords equipped with practically new harnesses and heddles drawn in and running. Large quantities of cams, beams, change gears, harnesses, extra parts, etc., also—

3 Universal quillers complete for overend copping.
1 Examining frame.
1 Hand driven edge machine and creel.
1 Eastwood warper and creel.

All equipment necessary to run this unit.

Write or wire
FS-817, Textile World
330 West 42nd St., New York 18, N. Y.

FOR SALE

for immediate delivery

12—Whitin 132 spindle tape drive, double vertical roll novelty twisters, 4½" gauge, 3" flange ring, cast iron holder, 1½" diameter, bottom rolls, top line of self-weighted rolls 3¼"x2", bottom line of self-weighted rolls 3¼"x2½", 7½" traverse, 8" cylinder, spindle blade 7"x5/16", 1⅝" diameter whirl, separators, knee brakes and guards, eleven with three bank creels, one with four bank creel, three motor driven 550/60/3, nine motor driven, 39" frames, approximately 5500 bobbins available for the frames.

In excellent condition.

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Used Textile Machinery and Supplies
FACTORY APPRAISALS
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40 Crompton & Knowles Worcester 2 x 1 Looms, 78" reed space, 20 harness, intermediate heads, roller bearing, shock absorber, individually motor driven, at a very attractive price.
200—#90 Universal Quillers or Coppers
50 Model "E" Draper looms, individually motor driven

PATERSON SILK MACHINERY EXCHANGE

24 SPRUCE STREET • PATERSON, N. J.
SHERWOOD 2-1363-4-5

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4—Whitin 378 sp. Long Chain Quillers
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1—Saco-Lowell Copper Lined Size Box
6—54" Warpers, Draper, Entwistle and Saco-Lowell
1—20 Nash Vacuum Pump
3—60" Cashiko Tape Condensers
1—P. & W. 72" Full Decating Machine
1—Atlas 48" Burr Picker
43—Stafford 76" automatic 20 harness, motor driven looms
6—Draper 82" automatic 25 harness, motor driven looms

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Tel: Perry 1038

SOUTHERN STANDARD MILL SUPPLY CO.
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FOR SALE

Parkhurst 48" DUPLEX BURR PICKER.
3—Proctor-Schwartz RAW STOCK DRYERS.
2—Psarski RAW STOCK DYEING MACHS.
2—WHITIN 50 in. FEEDS Large Hoppers.
2—DAVIS & FURBER 80 in. NAPPERS.
15—TOMPKINS KNITTING TABLES.

EXTRA CYLINDERS
PARTS—BURR WHEELS

2—McCREERY ROLLUP & TURN MACHS.
COMPLETE 6 unit VERT. DRY OUTFIT.
4—SLITTING MACHINES 40 in. capacity.
Proctor & Schwartz TENTER FRAME.
1—5 roll CALENDER MACHINE.
44—Heads LOWELL DRAWING 12" Cans.
40 Heads SACO-LOWELL Drawing Cans.
4—Saco-Lowell SLUBBERS, 64 sp.
8—Lowell SPEEDERS 128 sp.

Geo. E. Smith Textile Machinery Co.
P. O. BOX 46 COHOES, N. Y.

FOR SALE

CARD MACHINE

One old Cleveland Card. Three breakers. Wood cylinders 48"x48". Requires one new doffer and comb. Bearings need rebabbitting. We need the room. Will sell cheap.

Hanover Woolen Mills Co.
Hanover, Illinois

HEDDLES & FRAMES

FOR SALE
1,000,000—Flat Steel Heddles 10" (5/16" eye)
2,000—Heddle Frames 68" for 10" Heddles
5,000—Heddle Frames 66"-68" for 12" Heddles
3,000—Heddle Frames 78" for 12" Heddles
1,000—Heddle Frames 80" for 14" Heddles
(All Metal End Frames)

All items listed stored here at our warehouse
L. J. McCAFFREY & SON, INC.,
BOX 495 PAWTUCKET, R. I.

FOR SALE

Circular Knitting Machines

22—SCOTT & WILLIAMS, 10 cut, 24 gauge, 8 feed, with 16 end stop motion. Cylinder sizes 14" to 20". Complete and in good condition.

JONES MACHINERY CO.
P. O. Box 1093 Atlanta 1, Ga.

FOR SALE

Used Dyehouse Equipment

Warp and Skein dyeing. Dryer, Splitter, Banders, Extractors, Kiers, and Tubs

Apply to WM. C. JOHNSON
P. O. Box 1255 Prov., R. I.

FOR SALE

All types of Circular and Flat Knitting Machines, also Parts and Latch Needles. State your needs or send us a sample to match. 67 Wildman ribbers. 6 Coopers 3/18" 12 cut 1-19", 1-20", "G" type 1-21", spring beard Wesco electric stop-motion.

A. LIBERKOWSKI, Melvale Machine Wks.
3222 Melvale St. Phila. 34, Penna.

COTTON PICKER—For Sale

C. G. Sargents Sons—48"—#213, Apron Feed, 12 Spiked Slats, Spare Reel, 5 Spiders—Fine Condition.
Also 50 — 48" Looms (Crompton and Knowles)

BILL BROD
833 S. San Pedro St. Los Angeles, Cal.
Tucker 1521

LIQUIDATING

EXCELLENT TEXTILE EQUIPMENT READY FOR IMMEDIATE SHIPMENT

SPECIAL

4—James Hunter Squeeze Rolls, 2 Top and 1 Bottom Rubber Covered Rolls, 50" Face, Hand Screw Lever Set, with countershaft.

5—James Hunter Squeeze Rolls, 16" Rubber Covered Top and Bottom Steel Roll, Hand Screw Lever Set, with Countershaft.

KNITTING

160—Scott & Williams Nye & Tredick Circular Ribbers, Range 10" 10 cut 8 feet to 23' 14 cut 12 feed.

New Wildman, Scott & Williams and Nye and Tredick Needles, in original boxes.

SEWING

Union Special	Willcox & Gibbs
35300	All Styles
9900	
15400	**Singers**
16800 with Pullers	All Styles

Metropolitan

All Styles

WATER SOFTENING AND FILTRATION EQUIPMENT

2—Permutit Water Softeners, 10' Diameter x 16' Long, with Interconnecting Piping, Valves, Meters and large quantity of Zeolite.

2—Permutit Type C, Electric Chemical Feeding Devices, Constant Feed.

1—Permutit Vertical Water Softener, 5' x 6' with Valves, Piping and Zeolite.

7—Hungerford & Terry Horizontal Steel Pressure Water Filters, 8' x 20', 8,000 Gallons Capacity, 5/8" Plate, equipped with Cross Piping 8" Valves and all accessories.

1—Filter Everson 42" x 48".

1—Filter Permutit 6'6" x 6'.

1—Permutit Single Vertical Water Softening Unit, Steel Tank, Size 10' x 10', Oval Slide Manhole Opening, with Trident 3" Water Meter, Safety Valve, and 4 Gate Valves 5#.

COUNTERS

34—Veeder Root Pick Counters.

SPECIAL
ENGRAVING EQUIPMENT

7—John Hope 50" Pantograph Machines, Double Bar.

10—John Hope 48" Pantograph Machines, Double Bar.

1—John Hope 45" Pantograph Machine, Double Bar.

BELTING

1—Lot Wood and Fibre Variable Speed Drive Belts.

FINISHING

Beamer

1—Van Vlaanderen 50", Beaming and Rolling up Machine. Friction Drive.

Bleach House Equipment

2—8' x 9' Kiers.
2—10' Log Washers.
2—Bleach House Squeezers.

Calenders

1—Van Vlaanderen 3 Roll Finishing Calender, Wool Felt Bowls, Large Diameter.
3—Textile 50" 5 Bowl Calenders.
2—Textile 45" 3 Bowl Friction Calenders.

Can Dryers

1—set of 20 Cans Textile Copper Cans 23" diameter, 54" face, Vertical Stack.
1—set of 18 Cans, 23" x 45" face, Vertical Stack.
1—7 Can Butterworth Copper Cans, 23" diameter, 80" face.
1—Textile Can Drying and Rolling Up Machine, Copper Can 36" diameter, 50" face.
1—set of Textile Dry Cans—15 Cans—23" x 78".

CALENDER ROLLS

1—Paper Covered Silk Calender Roll, 50" Face, 16¼" Diameter, 59¾" Between Shoulders, Diameter of End Shaft 4 15/16", Length of End Shaft 6¾".

1—Steel Calender Roll, Newly Cotton Covered, 50" Face, 20" Diameter, 61" between Shoulders, Shaft 9" each End, Diameter 6 15/16".

6—Steel Schreiner Calender Rolls, 42" and 46" Face.

SPECIAL

500—Butterworth Tenter Chain Clips, Type O-O Top Opening, Brass Faced Clips.

Decators

1—Parks & Woolson, 72" Semi-Decater with Blanket, Nash Vacuum Pump and Motor.

Doublers

2—Parks & Woolson 54" Doubling and Reeling Machines.
1—Van Vlaanderen 60" Doubling and Winding Machine.

Dye Becks

1—Monel Metal Solid Tub Dye Beck, 5' with Monel Reels.
2—Stainless Steel Lined Sample Dye Becks.
1—Van Vlaanderen 4' Stainless Steel Lined Dye Beck.
1—Van Vlaanderen 19' Cypress Dye Beck.

Dye Jiggs

6—Textile Copper Lined Dye Jiggs 45" Face.

Dye Padder

1—Butterworth 2 Roll Dye Padder, Brass and Rubber Roll Motor Driven.

SPECIAL

5—Textile Dye Jiggs, 54" Wooden Tub, 2 Rubber Covered Ball Bearing Top Rolls, 4 Stainless Steel Immersion Rolls, Bevel Gear Drive.

1—De Laval Worm Reduction Gear Unit, direct connected to Lincoln 10 H.P. A.C. Motor, 550 volts, 60 Cycle, 3 Phase, 1200 R.P.M., with Control.

1—Battery of 4 Morrison Stainless Steel Dye Jiggs, 50", A.C. Motor Drive.

Embossers

1—Textile Two Roll Embossing Calenders, 12" face, One Roll Gas Heated, Pulley Driven, Complete with Table and Winder.

Extractors

1—American 48" Open Top Motor Driven Extractor, Copper Basket.
3—Hercules 63" Motor Driven Extractors, Copper Basket.

Folders

1—Eastwood Gray Goods Folder, 60" Wide.
3—E & H Flat Folders, 45" to 60" Wide.

GAS SYSTEM

1—Kemp Automatic Gas System, with Rotary Pressure Blower, By-Pass Valve, Back Fire Preventer, and Expansion Chamber.

GEARS

1—Lot Bronze Machine Gears, Assorted Sizes (834 pounds).

METER

1—General Electric Flow Meter, Type F-12.

KETTLES

8—Copper Steam Jacketed Mixing Kettles, Equipped with Double Motion, Bronze Agitators, 70 to 350 Gallons Capacity.

Palmer

1—65" Van Vlaanderen Palmer Tenter Quetsch Unit, with Stainless Clips and Housing.

Printing

1—Werner 50" Single Color Print Machine.
1—Rice, Barton & Fales 7 Color 50" Print Machine.
2—Rice, Barton & Fales, 42" Print Machine, 8 and 11 color.

PRINT MACHINE MOTORS

5—Print Machine Motors, 25 to 35 H.P.

Tenter Frames

1—30' Windsor & Jerauld Open Tenter Frame with Steam Heating Coils.
1—60' Windsor & Jerauld Tenter Frame with Proctor & Schwartz Housing.

SPECIAL

1—Butterworth 42" Hydraulic Schreiner 2 Bowl Calender, equipped with Cotton and Steel Engraved Rolls, Gas Heated Friction Unrolling and Batcher, Tension Rolls, Complete with Accumulator and Pump, direct connected to General Electric 3 H.P. A.C. Motor, 550 Volts, 60 Cycle, 3 Phase, 900 R.P.M., Type M. T., with Drum Controller, Magnetic Switch and Grids.

REMEMBER
Republic Textile
EQUIPMENT COMPANY
40 WORTH STREET NEW YORK CITY
Purchase and Sale of Used Machinery
REFINANCING • APPRAISALS • PURCHASE • SALE • LIQUIDATION OF MILL PROPERTIES

SEARCHLIGHT SECTION

(Continued from page 249)

SALESMAN WANTED

TECHNICAL SALESMAN—with knowledge of textile sizing and finishing, by old established company, essential in war and peace. Application should include age, draft status, salary desired and recent photo, non-returnable. SW-829, Textile World, 330 W. 42nd St., New York 18, N. Y.

REPRESENTATIVE AVAILABLE

UNIVERSAL TEXTILE AGENCY of 232 Castlereagh Street, Sydney N.S.W. Australia, agents and wholesale distributors, would like to start negotiations, with a view to immediate and post-war business of buying and distributing cotton, rayon, coloured woven, plain and printed piece goods, and will be pleased also to consider buying and distributing other fashion lines such as ribbons, scarves, etc.

WANTED

WANTED BY ONE WHO KNOWS the exact spot where each item is most urgently needed. Any type yarns, natural or dyed cotton, rayon, acetate. Cash. W-762, Textile World, 330 W. 42nd St., New York 18, N. Y.

FOR SALE

FOR SALE 5,000 lbs. warps in skeins. FS-807, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED

Nationally known packaging company is seeking a sales representative for textile industry. Thorough knowledge of the merchandising problems of the industry is essential. For the man who has a high degree of sales talent plus the required background, this will be an interesting and highly profitable connection. Write in full confidence to

SW-811, Textile World
330 W. 42nd St., New York 18, N. Y.

AVAILABLE
Machinery Salesman

With some Engineering experience would like to represent manufacturer or responsible sales agency in Southeast with a view to filling present demands insofar as possible but particularly looking towards post-war demands.

SA-822, Textile World
330 West 42nd St., New York 18, N. Y.

EXPORT TO MIDDLE-EAST

Palestine manufacturer well equipped for repair and maintenance work wants to represent leading American firm manufacturing processing and other machinery in the Middle East.

Write to

MR. PAUL D. PERUTZ
Rm. 1306, 60 Beaver St., New York 4, N.Y.

FOR SALE
4—90" multineedle
QUILTING MACHINE

In perfect condition

FS-791, Textile World
330 West 42nd St., New York 18, N. Y.

FOR SALE

Three Textile Heavy-Duty Bleaching Pressure Cookers

JAFFEE COTTON PRODUCTS MFG. CO., INC.
P. O. Box 5184 Dallas 2, Texas

FOR SALE
1—100-spindle
BUHLMANN SKEIN DYEING MACHINE

All monel metal tanks and piping including 5 HP motor.

ALBERT R. BREEN
80 E. Jackson Blvd. Chicago

FOR SALE
BUTTERWORTH CALENDAR
7 ROLLS—80" FACE

3 Composition Rolls, 4 Steel Rolls, Hydraulic lift —water-cooled journals. Located in South.

AMES BAG CO.
10 EAST 40TH ST. NEW YORK CITY

FOR SALE

Whitin Novelty Yarn Twisting Machines, Tape Drive, Individual Motors, Reverse Twist Arrangement, 200 Spindles each. 3½" Gauge, 2½" Vertical Rings.

Excellent Condition

FS-808, Textile World
330 W. 42nd St., New York 18, N. Y.

WANTED

WANTED
WORSTED SPINNING MILL
Will buy or lease

All replies held strictly confidential

BO 821 Textile World,
330 W. 42d St., New York 18, N. Y.

COTTON CARDS WANTED

Reasonable condition.

40 in.

WINTHROP SPINNING
Manchester, N. H.

WANTED
Chemicals—Dyes—Gums Waxes—Lacquers
Also Textiles of All Kinds

W-820, Textile World
330 W. 42nd St., New York 18, N. Y.

WANTED
60 AUTOMATIC LOOMS

Suitable for Rayon Dress Fabric. Send full details; age; condition; price.

W-824, Textile World
330 W. 42nd St., New York 18, N. Y.

WANTED
WOOL COMBING PLANT
for 52s to 62s

Interested in purchasing a complete new plant, or second-hand machinery in very good condition.

ERNEST K. TALAY
P. O. Box 453 Montreal, Canada

WANTED
Your Obsolete Sewing Threads

Send samples and quantities for quick disposal.

W-675, Textile World
330 W. 42nd St., New York 18, N. Y.

WANTED
28 cut—18" or wider
KNITTING MACHINE

W809 Textile World
330 West 42nd St., New York 18, N. Y.

New "SEARCHLIGHT" Advertisements

received by April 27th will appear in the May issue subject to limitations of space available.

Address copy to Departmental Staff

TEXTILE WORLD
330 West 42nd St. New York

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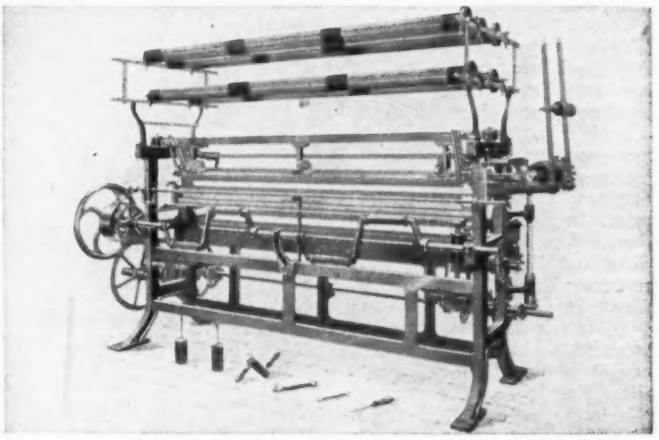
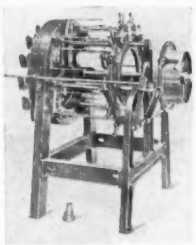
Are You Suffering from
"ABSENTEE" EQUIPMENT?

TWISTING–WINDING–
BRAIDING–KNITTING–
ROPE MACHINERY



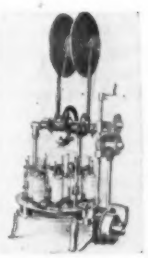


BRAIDING MACHINES of all types for use in the manufacture of parachute cords, military cords, flat tapes, rugs, elastic tapes and braids, wire cords and braids, etc.

TWISTING MACHINES, in various makes, for hundreds of uses such as: cords, twines, rope, guimpe, wire, etc.

KNITTING MACHINES for use in the manufacturing of nettings, cloths of all types, rug materials, curtains, elastic girdle fabrics, hosiery webbing, shoe cloths, pocketbook materials.

WINDING MACHINES of all types and makes for threading, winding and spooling.



We have been handling the above type of equipment for the past 20 years and solicit any and all inquiries for anything in textiles.

All the above priced reasonably for quick sales. Quite a few of these knitting and braiding machines are set up on our floors, where all the machines are located. What we mean by set up, is the machines are in operating conditions with material such as nets, rugs, dish cloths, cords, flat plain and fancy braids in them, for inspection and operation.

ROBERT SOLOMON & CO., Inc.

TEXTILE EQUIPMENT SPECIALISTS

162-168 Greene Street **New York, N. Y.**

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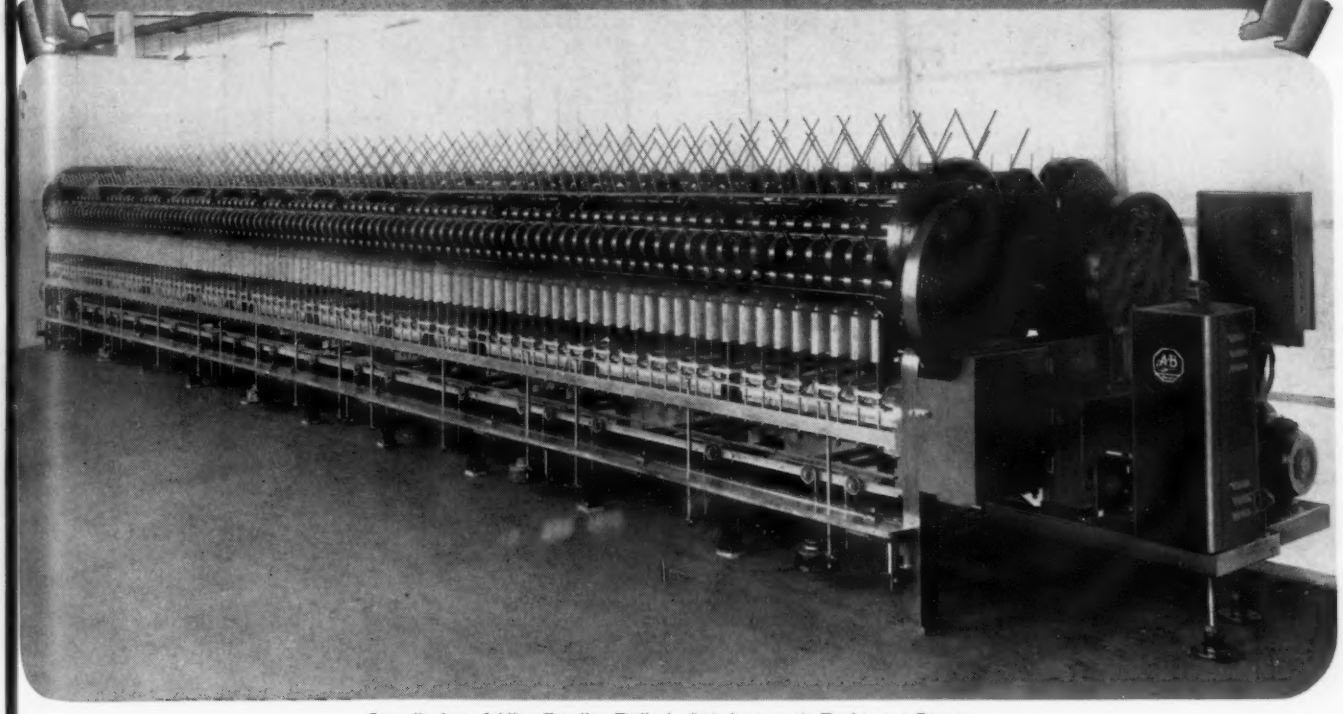
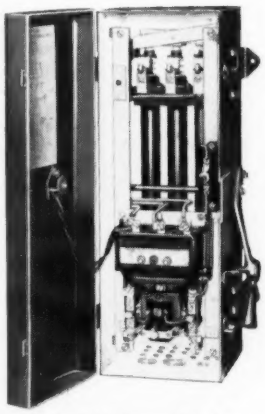
VELVET-SMOOTH MOTOR STARTERS FOR TEXTILE MILLS



Installation of Allen-Bradley Bulletin 740 Automatic Resistance Starter which provides stepless speed control from standstill to full speed.

REDUCE YARN BREAKAGE



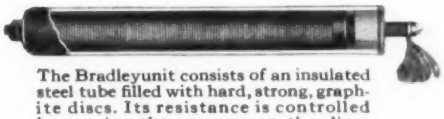
Bulletin 640 Manual Resistance Starter rated at 15 hp. and 220v.

The breakage of yarns, due to sudden starting jolts, can be prevented. Just start your textile machinery the velvet-smooth way ... with Allen-Bradley resistance starters.

These remarkable motor starters are very different in design and performance from conventional compensator starters. They control the input of starting current with the velvet smoothness of a valve. The motor and machine start smoothly ... there are no jerks ... no breaks in the gradual increase in speed from standstill to full speed, such as would occur if an ordinary starting transformer were used.

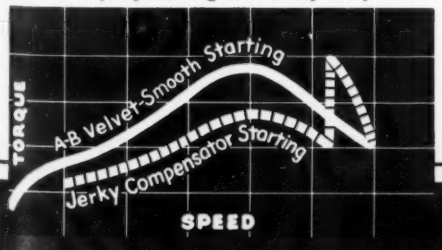
Many textile mills are using A-B Resistance Starters. Some mills use manual starters ... others use an automatic type. Both are described in our bulletins 640 and 740, which we will gladly send you. It will pay you to investigate these velvet-smooth starters for your post-war production program.

Allen-Bradley Company
120 W. Greenfield Ave., Milwaukee 4, Wis.



The Bradleyunit consists of an insulated steel tube filled with hard, strong, graphite discs. Its resistance is controlled by varying the pressure on the discs.

Velvet-smooth starting of A-B resistance starter compared with jerky starting of ordinary compensator.



Send for Bulletin giving important facts about cost-cutting motor controls for textile mills. Ask for Bulletins 640 and 740.

A-B Quality

ALLEN-BRADLEY
QUALITY

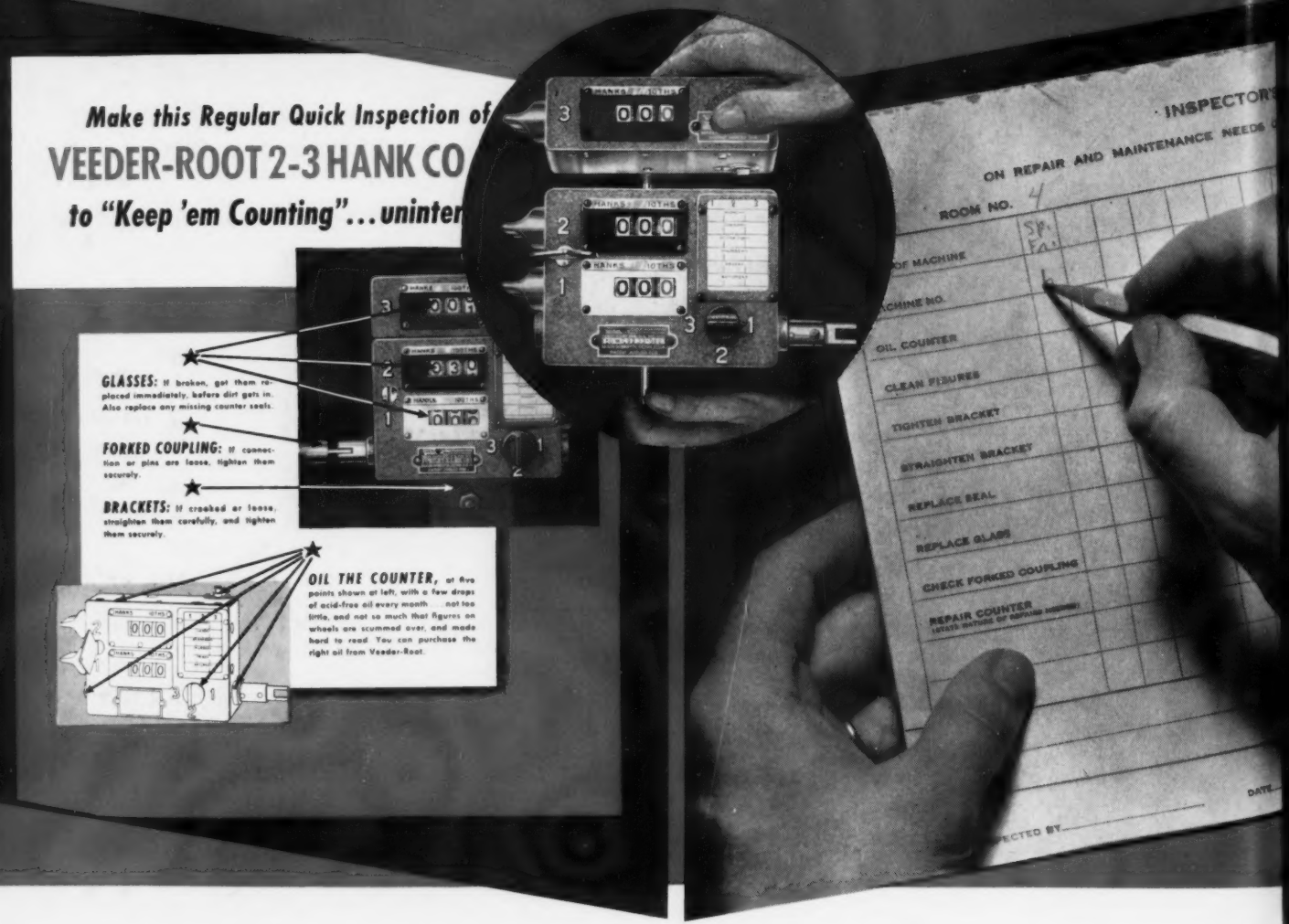
VELVET-SMOOTH MOTOR CONTROLS

NOW READY!

NEW CHARTS AND PADS TO HELP KEEP YOU

VEEDER-ROOT 2-3 HANK COUNTERS

IN TOP CONDITION


Make this Regular Quick Inspection of
VEEDER-ROOT 2-3 HANK CO
to "Keep 'em Counting"...uninter
GLASSES: If broken, get them replaced immediately, before dirt gets in. Also replace any missing counter seals.
FORKED COUPLING: If connection or pins are loose, tighten them securely.
BRACKETS: If crooked or loose, straighten them carefully, and tighten them securely.
OIL THE COUNTER, at five points shown at left, with a few drops of acid-free oil every month ... not too little, and not so much that figures on wheels are scummed over, and made hard to read. You can purchase the right oil from Veeder-Root.
INSPECTOR'S
ON REPAIR AND MAINTENANCE NEEDS
ROOM NO.
OF MACHINE
CHINE NO.
OIL COUNTER
CLEAN FIGURES
TIGHTEN BRACKET
STRAIGHTEN BRACKET
REPLACE SEAL
REPLACE GLASS
CHECK FORKED COUPLING
REPAIR COUNTER
DATE

In addition to the charts and pads which have proved big helps in keeping 2-3 Pick Counters operating . . . Veeder-Root now also offers you, without cost or obligation, the same double-checking maintenance tools for the Veeder-Root 2-3 Hank Counters in your spinning rooms, twister rooms, and card rooms.

The wall-hanging check chart shows where and tells how to oil a 2-3 Hank Counter . . . also points out each important feature to check for maintenance needs. The check sheet, in pads of 100 sheets each, gives ample room to check off the maintenance needs of the counters on 20 different machines.

These charts and pads are yours for the asking. Just drop line to Hartford or Greenville, telling how many frames a cards you are running, and we will ship you promptly a supp that is ample for your needs.

VEEDER-ROOT
INCORPORATED

The Counting House of Industry

Hartford 2, Connecticut
Greenville, South Carolina

In Canada: Veeder-Root of Canada, Ltd., Montreal
In England: Veeder-Root Ltd. (new address on request)